MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
RAIL & TRANSIT DIVISION

PROCUREMENT OF VANS & MINIBUSES
RFR # MDOTBOSTONFED14

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Please Note: This is a single document associated with a complete Bid (also referred to as Solicitation) that can be found on www.COMMBUYS.com. All Bidders are responsible for reviewing and adhering to all information, forms and requirements for the entire Bid, which are all incorporated into the Bid. Bidders may also contact the COMMBUYS Helpdesk at COMMBUYS@state.ma.us or the COMMBUYS Helpline at 1-888-MA-STATE. The Helpline is staffed from 8:00 AM to 5:00 PM Monday through Friday Eastern Standard or Daylight time, as applicable, except on federal, state and Suffolk county holidays.

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The terms of *801 CMR 21.00: Procurement of Commodities and Services* (and *808 CMR 1.00: Compliance, Reporting and Auditing for Human and Social Services*, if applicable) are incorporated by reference into this RFR. Words used in this RFR shall have the meanings defined in 801 CMR 21.00 (and 808 CMR 1.00, if applicable). Additional definitions may also be identified in this RFR. Unless otherwise specified in this RFR, all communications, responses, and documentation must be in English, all measurements must be provided in feet, inches, and pounds and all cost proposals or figures in U.S. currency. All responses shall be submitted in accordance with the specific terms of this RFR.

Disadvantaged Business Enterprises (DBE): This RFR is subject to 49 CFR Part 26. The individual(s) and/or firm(s) shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the individual(s) and/or firm(s) to carry out these requirements is a material breach of the contract, which may result in the termination of the contract or such other remedy as MassDOT deems appropriate.

Transit Vehicle Manufacturers (TVM) must establish and submit for Federal Transit Administration (FTA) approval an annual overall DBE goal. In setting this overall goal, you should be guided, to the extent applicable, by the principles underlying 49 CFR Part 26.45. The proposer must submit a TVM Certificate as part of the bid proposal in order to confirm that the proposer has obtained 49 CFR Part 26.49 certification.

Best Value Selection and Negotiation: The Procurement Management Team (PMT) may select the response(s) which demonstrates the best value overall, including proposed alternatives that will achieve the procurement goals of the department. The PMT and a selected bidder, or a contractor, may negotiate a change in any element of contract performance or cost identified in the original RFR or the selected bidder's or contractor's response which results in lower costs or a more cost effective or better value than was presented in the selected bidder's or contractor's original response.

Bidder Communication: Bidders are prohibited from communicating directly with any employee of the procuring department or any member of the PMT regarding this RFR except as specified in this RFR, and no other individual Commonwealth employee or representative is authorized to provide any information or respond to any question or inquiry concerning this RFR. Bidders may contact the contact person for this RFR in the event this RFR is incomplete or the bidder is having trouble obtaining any required attachments electronically through CommBuys.

CommBuys Market Center: CommBuys is the official source of information for this Bid and is publicly accessible at no charge at www.commbuys.com. Information contained in this document and in COMMBUYS, including file attachments, and information contained in the related Bid Questions and Answers (Q&A), are all components of the Bid, as referenced in COMMBUYS, and are incorporated into the Bid and any resulting contract.

Bidders are solely responsible for obtaining all information distributed for this Bid via COMMBUYS. Bid Q&A supports Bidder submission of written questions associated with a Bid and publication of official answers.

It is each Bidder's responsibility to check COMMBUYS for:

- Any amendments, addenda or modifications to this Bid, and
- Any Bid Q&A records related to this Bid.

The Commonwealth accepts no responsibility and will provide no accommodation to Bidders who submit a Quote based on an out-of-date Bid or on information received from a source other than COMMBUYS.

CommBuys Subscription: Bidders may elect to obtain a free COMMBUYS Seller subscription which provides value-added features, including automated email notification associated with postings and modifications to COMMBUYS records. However, in order to respond to a Bid, Bidders must register and maintain an active COMMBUYS Seller subscription account.

All Bidders submitting a Quote (previously referred to as Response) in response to this Bid (previously referred to as Solicitation) agree that, if awarded a contract: (1) they will maintain an active seller account in COMMBUYS; (2) they will, when directed to do so by the procuring entity, activate and maintain a COMMBUYS-enabled catalog using Commonwealth Commodity Codes; (3) they will comply with all requests by the procuring entity to utilize COMMBUYS for the purposes of conducting all aspects of purchasing and invoicing with the Commonwealth, as added functionality for the COMMBUYS system is activated; (4) Bidder understands and acknowledges that all references to the Comm-PASS website or related requirements throughout this RFR, shall be superseded by comparable requirements pertaining to the COMMBUYS website; and (6) in the event the Commonwealth adopts an alternate market center system, successful Bidders will be required to utilize such system, as directed by the procuring entity. Commonwealth Commodity Codes are based on the United Nations Standard Products and Services Code (UNSPSC).

The COMMBUYS system introduces new terminology, which bidders must be familiar with in order to conduct business with the Commonwealth. To view this terminology and to learn more about the COMMBUYS system, please visit the COMMBUYS Resource Center.

Contract Expansion: If additional funds become available during the contract duration period, the department reserves the right to increase the maximum obligation to some or all contracts executed as a result of this RFR or to execute contracts with contractors not funded in the initial selection process, subject to available funding, satisfactory contract performance and service or commodity need.

Costs: Costs which are not specifically identified in the bidder's response, and accepted by a department as part of a contract, shall not be compensated under any contract awarded pursuant to this RFR. The Commonwealth will not be responsible for any costs or expenses incurred by bidders responding to this RFR.

Debriefing: Non-successful bidders may request a debriefing from the department. Department debriefing procedures may be found in the RFR. Non-successful POS bidders aggrieved by the decision of a department must participate in a debriefing as a prerequisite to an administrative appeal.

Electronic Communication/Update of Bidder's/Contractor's Contact Information: It is the responsibility of the prospective bidder and awarded contractor to keep current the email address of the bidder's contact person and prospective contract manager, if awarded a contract, and to monitor that email inbox for communications from the PMT, including requests for clarification. The PMT and the Commonwealth assume no responsibility if a prospective bidder's/awarded contractor's designated email address is not current, or if technical problems, including those with the prospective bidder's/awarded contractor's computer, network or internet service provider (ISP) cause email communications sent to/from the prospective bidder/awarded contractor and the PMT to be lost or rejected by any means including email or spam filtering.

Electronic Funds Transfer (EFT): All bidders responding to this RFR must agree to participate in the Commonwealth Electronic Funds Transfer (EFT) program for receiving payments, unless the bidder can provide compelling proof that it would be unduly burdensome. EFT is a benefit to both contractors and the Commonwealth because it ensures fast, safe and reliable payment directly to contractors and saves both parties the cost of processing checks. Contractors are able to track and verify payments made electronically through the Comptroller's Vendor Web system. A link to the EFT application can be found on the OSD Forms page (www.mass.gov/osd). Additional information about EFT is available on the VendorWeb site (www.mass.gov/osc). Click on MASS finance.

Successful bidders, upon notification of contract award, will be required to enroll in EFT as a contract requirement by completing and submitting the *Authorization for Electronic Funds Payment Form* to this department for review, approval and forwarding to the Office of the Comptroller. If the bidder is already enrolled in the program, it may so indicate in its response. Because the *Authorization for Electronic Funds Payment Form* contains banking information, this form, and all information contained on this form, shall not be considered a public record and shall not be subject to public disclosure through a public records request.

The requirement to use EFT may be waived by the PMT on a case-by-case basis if participation in the program would be unduly burdensome on the bidder. If a bidder is claiming that this requirement is a hardship or unduly burdensome, the specific reason must be documented in its response. The PMT will consider such requests on a case-by-case basis and communicate the findings with the bidder.

Environmental Response Submission Compliance: In an effort to promote greater use of recycled and environmentally preferable products and minimize waste, all responses submitted should comply with the following guidelines:

- All copies should be printed double sided.
- All submittals and copies should be printed on recycled paper with a minimum post-consumer content of 30% or on tree-free paper (i.e. paper made from raw materials other than trees, such as kenaf). To document the use of such paper, a photocopy of the ream cover/wrapper should be included with the response.
- Unless absolutely necessary, all responses and copies should minimize or eliminate use of non-recyclable or non re-usable materials such as plastic report covers, plastic dividers, vinyl sleeves and GBC binding. Three ringed binders, glued materials, paper clips and staples are acceptable.
- Bidders should submit materials in a format which allows for easy removal and recycling of paper materials.
- Bidders are encouraged to use other products which contain recycled content in their response documents. Such products may include, but are not limited to, folders, binders, paper clips, diskettes, envelopes, boxes, etc. Where appropriate, bidders should note which products in their responses are made with recycled materials.
- Unnecessary samples, attachments or documents not specifically asked for should not be submitted.

HIPPA: Business Associate Contractual Obligations: Bidders are notified that any department meeting the definition of a Covered Entity under the Health Insurance Portability and Accountability Act of 1996 (HIPAA) will include in the RFR and resulting contract sufficient language establishing the successful bidder’s contractual obligations, if any, that the department will require in order for the department to comply with HIPAA and the privacy and security regulations promulgated thereunder (45 CFR Parts 160, 162, and 164) (the Privacy and Security Rules). For example, if the department determines that the successful bidder is a business associate performing functions or activities involving protected health information, as such terms are used in the Privacy and Security Rules, then the department will include in the RFR and resulting contract a sufficient description of business associate’s contractual obligations regarding the privacy and security of the protected health information, as listed in 45 CFR 164.314 and 164.504 (e), including, but not limited to, the bidder's obligation to: implement administrative, physical, and technical safeguards that reasonably and appropriately protect the confidentiality, integrity, and availability of the protected health information (in whatever form it is maintained or used, including verbal communications); provide individuals access to their records; and strictly limit use and disclosure of the protected health information for only those purposes approved by the department. Further, the department reserves the right to add any requirement during the course of the contract that it determines it must include in the contract in order for the department to comply with the Privacy and Security Rules. Please see other sections of the RFR for any further HIPAA details, if applicable.

Minimum Bid Duration: Bidders responses/bids made in response to this RFR must remain in effect for at least 90 days from the date of bid submission.

Pricing: Federal Government Services Administration (GSA) or Veteran's Administration Supply: The Commonwealth reserves the right to request from the successful bidder(s) initial pricing schedules and periodic updates available under their GSA or other federal pricing contracts. In the absence of proprietary information being part of such contracts, compliance for submission of requested pricing information is expected within 30 days of any request. If the contractor receives a GSA or Veteran's Administration Supply contract at any time during this contract period, it must notify the Commonwealth contract manager.

Pricing: Price Limitation: The bidder must agree that no other state or public entity customer within the United States of similar size and with similar terms and conditions shall receive a lower price for the same commodity and service during the contract period, unless this same lower price is immediately effective for the Commonwealth. If the Commonwealth believes that it is not receiving this lower price as required by this language, the bidder must agree to provide current or historical pricing offered or negotiated with other state or public entities at any time during the contract period in the absence of proprietary information being part of such contracts.

Prompt Payment Discounts (PPD): All bidders responding to this procurement must agree to offer discounts through participation in the Commonwealth Prompt Payment Discount (PPD) initiative for receiving early and/or on-time payments, unless the bidder can provide compelling proof that it would be unduly burdensome. PPD benefits both contractors and the Commonwealth. Contractors benefit by increased, usable cash flow as a result of fast and efficient payments for commodities or services rendered. Participation in the Electronic Funds Transfer initiative further maximizes the benefits with payments directed to designated accounts, thus eliminating the impact of check clearance policies and traditional mail lead time or delays. The Commonwealth benefits because contractors reduce the cost of products and services through the applied discount. Payments that are processed electronically can be tracked and verified through the Comptroller's Vendor

Web system. The PPD form can be found under the Forms and Terms tab of this solicitation.

Bidders shall submit agreeable terms for Prompt Payment Discount using the PPD form within their proposal, unless otherwise specified by the PMT. The PMT will review, negotiate or reject the offering as deemed in the best interest of the Commonwealth.

Public Records: All responses and information submitted in response to this RFR are subject to the Massachusetts Public Records Law, M.G.L., c. 66, s. 10, and to c. 4, s. 7, ss. 26. Any statements in submitted responses that are inconsistent with these statutes shall be disregarded.

Reasonable Accommodation: Bidders with disabilities or hardships that seek reasonable accommodation, which may include the receipt of RFR information in an alternative format, must communicate such requests in writing to the contact person. Requests for accommodation will be addressed on a case by case basis. A bidder requesting accommodation must submit a written statement which describes the bidder's disability and the requested accommodation to the contact person for the RFR. The PMT reserves the right to reject unreasonable requests.

Restriction on the Use of the Commonwealth Seal: Bidders and contractors are not allowed to display the Commonwealth of Massachusetts Seal in their bid package or subsequent marketing materials if they are awarded a contract because use of the coat of arms and the Great Seal of the Commonwealth for advertising or commercial purposes is prohibited by law.

Subcontracting Policies: Prior approval of the department is required for any subcontracted service of the contract. Contractors are responsible for the satisfactory performance and adequate oversight of its subcontractors. Human and social service subcontractors are also required to meet the same state and federal financial and program reporting requirements and are held to the same reimbursable cost standards as contractors.

Right of Protest (FTA Circular 4220.1F): If a Contractor has a grievance with a solicitation or award, they may protest to the Procurement Team Manager within 5 days of award. The written protest shall include the name of the protestor, solicitation/contract number or description, and a statement of the grounds for protest. Protests should be filed with the Procurement Team Manager at the following address:

Tom Stein
Federal Procurement Officer

Massachusetts Department of Transportation
Rail & Transit Division
10 Park Plaza, Room 5522
Boston, MA 02116
Phone: (857) 368-9141
Tom.stein@state.ma.us

The Procurement Team Manager will investigate the complaint and decide whether the complaint is justified and if so, what corrective action should be taken. All decisions by the Procurement Team Manager are final.

The Federal Transit Administration will only entertain a protest that alleges the Massachusetts Department of Transportation failed to follow the stated protest procedures. Such protests to FTA shall be filed in accordance with FTA Circular 4220.1F.

1.0 REQUEST FOR RESPONSE

MassDOT and the MBTA procure four types of fully accessible body-on-chassis vans and minibuses on an annual basis. These vehicles are procured by the MBTA for demand response service known as The RIDE. MassDOT procures these vehicles for grant sub-recipients across the Commonwealth of Massachusetts, to include Regional Transit Authorities (RTAs), private non-profits, and councils on aging (municipalities). These vehicles are awarded through the annual MassDOT Community Transit Grant Program, in which applicants submits applications for one or more vehicles for which costs will be incurred by MassDOT in ranges between 80% - 100%.

MassDOT purchased vehicles are funded by the following federal and state programs: Sec. 5310 – Enhanced Mobility for Seniors and Individuals with Disabilities; Sec. 5339 – Bus and Bus Facilities; and the Mobility Assistance Program (MAP). MBTA purchased vehicles are funded by state or federal or a combination of both state and federal funding.

Services provided by operators include ADA required service, demand response services beyond those of ADA requirements, Human Service Transportation (HST) trips, medical dial-a-ride services, and other sponsored trips for seniors and individuals with disabilities.

Vehicles procured by MassDOT and the MBTA meet all applicable Federal Transit Administration (FTA), Federal Motor Vehicle Safety Standards (FMVSS), and Commonwealth of Massachusetts accessibility requirements.

The vans and minibuses to be procured will be started and stopped frequently, resulting in demands on the drive train, suspension, and braking systems. The intent of these specifications is to describe vans and minibuses of the latest design suitable for service under conditions prevailing within the service area of Massachusetts The desire of the Massachusetts Department of Transportation (MassDOT) and the MBTA is to obtain vans and minibuses that not only meets the operational and performance requirements, but one that provides an optimum degree of reliability and maintainability. Throughout the specifications references are made to specific components or products. Where not stated, “or approved equal” is implied after each reference. Wherever the term MassDOT or the MBTA is used in these specifications, the “or its designated representative’ is implied if not stated.

These vans and minibuses will be purchased by MassDOT and the MBTA and provided for use as described above.

It is the intention of this specification to provide for the purchase of buses of substantial and durable construction. Particular attention shall be given to features which shall provide for the safest vehicle possible.

Timely, responsive service bulletins of recalls shall be guaranteed to the Commonwealth.

Interior trim shall be of high quality and durability. The seating package shall provide maximum comfort for drivers and passengers and shall provide maximum durability.

Suspension, drive train options, and engine shall be of the heaviest-duty available in order to provide maximum durability and reliability.

1.1 GENERAL REQUIREMENTS

- All specifications, components, and OEM add-on systems shall be fully ADA-compliant and shall comply with SAE, Federal, and State standards for engineering, quality, reliability, and safety.

- Proposers shall not omit any part or detail which makes the vehicle complete and service-ready, even though such part is not mentioned in the Technical Specifications.

- The price quoted shall include all items of labor, materials, tools, and other equipment and the costs necessary to complete the manufacture, delivery and warranty of vehicles in compliance with these specifications.

- All equipment and components shall be new. In no instances may remanufactured, reconditioned, or used parts be provided.

1.2 TECHNICAL SPECIFICATIONS (Attachment A & Attachment B)

1.3 INSTRUCTIONS FOR SUBMISSION OF PROPOSALS

Proposer shall submit both the technical proposal and cost proposal addressing the requirements listed above by the due date listed in Section1.4 (Procurement Calendar) and shall follow the format described in sections 1.3.1, and 1.3.2.

Questions and Requests for Approvals (RFA)

Written questions via the Bid Q&A on COMMBUYS

The "Bid Q&A" provides the opportunity for Bidders to ask written questions and receive written answers from the SST regarding this Bid. All Bidders' questions must be submitted through the Bid Q&A found on COMMBUYS (see below for instructions). Questions may be asked only prior to the Deadline for Submission of Questions stated in the Estimated Procurement Calendar. The issuing department reserves the right not to respond to questions submitted after this date. It is the Bidder's responsibility to verify receipt of questions.

Please note that any questions submitted to the SST using any other medium (including those that are sent by mail, fax, email or voicemail, etc.) will not be answered. To reduce the number of redundant or duplicate questions, Bidders are asked to review all questions previously submitted to determine whether the Bidder's question has already been posted.

Bidders are responsible for entering content suitable for public viewing, since all of the questions are accessible to the public. Bidders must not include any information that could be considered personal, security sensitive, inflammatory, incorrect, collusory, or otherwise objectionable, including information about the Bidder's company or other companies. The SST reserves the right to edit or delete any submitted questions that raise any of these issues or that are not in the best interest of the Commonwealth or this Bid.

All answers are final when posted. Any subsequent revisions to previously provided answers will be dated.

Locating Bid Q&A:

Log into COMMBUYS, locate the Bid, acknowledge receipt of the Bid, and scroll down to the bottom of the Bid Header page. The "Bid Q&A" button allows Bidders access to the Bid Q&A page.

~~Submitting RFAs (Request for Approval)~~

~~When submitting RFAs all email inquiries should reference the RFR Title and document ID#_"RFR # MDOTBOSTONFED7" in the subject line of the email. All RFAs shall be submitted in the same manner as Question submittal, outlined above.~~

Submittal Process (Questions and Requests for Approval-RFA)

All questions and RFAs (including technical, contract, or administrative questions) concerning this RFR shall be entered into the CommBuys Bid Q&A section. ~~described above in section 4.1.~~ Due date for submission of questions and RFAs can be found in the procurement calendar at the end of this RFR. MassDOT reserves the right to respond to inquiries as it deems necessary. All questions, answers and any addendums shall be posted on CommBuys and individual(s) and/or firm(s) are responsible for checking this website periodically for any updates.

How to submit a bid response

All Bidders may begin creating and compiling response materials as soon as the Solicitation containing files on the Forms & Terms tab and the Specifications tab is in an OPEN Document Status. When submitting response materials prior to the Solicitation Close Date, the ability to upload documents is only available to active CommBuys account holders after the Solicitation Amendment Deadline has passed. Once the Solicitation Close Date and Time has passed, interested Bidders will be unable to submit a Response online.

Bid Response Method

Online Bid Submission via CommBuys is required to eliminate direct and indirect costs associated with the production, delivery/receipt, storage and management of traditional paper bids incurred by Bidders, MassDOT, and the Commonwealth of Massachusetts. Bids submitted via CommBuys also promote environmental conservation and preservation by eliminating printed materials as well as fossil-fuel consumption associated with delivery. All Bidders must submit Responses online using tools available to CommBuys Subscribers only.

CommBuys requires an annual subscription. To subscribe, go to: www.commbuys.com. All Bidders who are awarded a contract resulting from this RFR, if any, will be required to maintain an active subscription account during the duration of the Contract, by renewing their subscription annually.

CommBuys Support

Technical assistance is available during the procurement process. Every effort is made to respond to inquiries within one business day.

Website: Go to www.mass.gov/osd and select the CommBuys Resource Center link offered within the Conduct a Procurement menu.

Email: Send inquiries to the CommBuys Helpdesk at COMMBUYS@state.ma.us.

Telephone: Call the CommBuys Helpline at 1-888-MA-STATE (1-888-627-8283). The Helpline is staffed from 8:00 AM to 5:00 PM Monday through Friday Eastern Standard or Daylight time, as applicable, except on federal and state holidays.

Bidders are advised that CommBuys will be unavailable during regularly scheduled maintenance hours as displayed under the "CommBuys System Availability" link offered at the bottom of any CommBuys page.

Bid Response Deadline

All Bids must be received by MassDOT before the specified date, month, year and time displayed on the Solicitation's Summary page within the Close Date field. Times are Eastern Standard/Daylight Savings (US), as applicable. All Bidders are advised to allow adequate time for submission by considering potential online submission impediments like Internet traffic, Internet connection speed, file size, and file volume. MassDOT is not responsible for delays encountered by Bidders or their agents, or for a Bidder's local hardware failures, such as computers or related networks, associated with bid compilation or submission. Bids submitted via CommBuys are time stamped by the CommBuys system clock which is considered the official time of record.

1.3.1 TECHNICAL PROPOSAL FORMAT

Proposers shall submit a comprehensive Technical Proposal in the format and order specified. Proposers are urged to be thorough in the preparation of their proposals.

Review and address each requirement described in the technical specifications and clearly describe your approach to meeting or exceeding each requirement. At a minimum, address in separate and distinct section of your Technical Proposal your firm's ability to comply with the following Minimum Technical Requirements:

- Vehicle Dimensions Compliance
  - Height (overall)
  - Width
  - Length
- American With Disabilities Act Compliance

The Proposer shall provide a Certification of Compliance Statement with their Proposal that provides the required assurances that the Proposer's van/minibus design meets the technical specification requirements for the above listed Minimum Technical Requirements.

In addition, the Proposer shall submit the following required documentation:

Bidder Response Form (contains all of the following)

- RFR Checklist Submission Sheet
- Letter of Transmittal
- Federal Clauses and Certifications
- Contractor Authorized Signature Verification Form
- Prompt Pay Discount Form
- Business Reference Form
- General Van & Minibus Data Sheet (one per each vehicle type proposed)
- MassDOT Certification & Assurance
- MassDOT Terms and Conditions (Required form unless already on file with the Comptroller. If on file, please state in proposal.
- Bidder's Price Proposal
- Sub-Recipient Add-On Pricing Page
- Acknowledgment of Receipt Addenda

The additional attachments are not required to be submitted with your RFR response, however, you are required to adhere to all clauses and terms and conditions. Additional attachments will be incorporated during contract execution, should your bid be selected.

- MassDOT Standard Contract Form
- Authorization for Electronic Funds Payment (EFT)
- Verification of Tax Reporting Information (W-9) (Required form unless already on file with the Comptroller. If on file, please state in proposal)

Proposers shall submit electronically a separate technical proposal for each vehicle type they wish to bid. A single proposal may be submitted, provided all technical elements are specified separately for each vehicle type.

1.3.2 COST PROPOSAL FORMAT

The Cost Proposal shall be submitted on the MassDOT Bidders Price Proposal Form. All items in the Bidders Price Proposal form are to be filled in and all calculations are to be completed by the Bidder.

The prices contained in the Cost Proposal shall provide compensation covering all costs and expenses for all the work required by this contract, which includes shipping and delivering all new buses to the designated delivery point in Massachusetts. The work includes all labor and conditions of this contract including all overhead, expenses, fees, labor, material and profits for the cost of providing the designated work. The work shall also cover any loss or damage arising out of the nature of the work and from any unforeseen difficulty encountered in the persecution of the work; and for all risks and expenses of any description connected with the work.

Proposers shall submit Cost Proposal electronically by the due date listed in section 1.4 (Procurement Calendar)

All responses not received electronically, in CommBuys, by the specified date and time shall not be considered as meeting this requirement and shall not be evaluated.

1.4 PROCUREMENT CALENDAR (estimated):

Date: October 10, 2014	Release of RFR on CommBuys
Date: November 7, 2014	Clarifications, Questions and Requests due in CommBuys Q&A (4:00PM, EST)
Date: Nov 21, 2014	Written responses to Clarifications, Questions and Requests posted in CommBuys Q&A section (estimated)
Date: Dec 11, 2014	**DUE DATE.** Technical and Cost Proposals **due** no later than 4:00PM, EST in CommBuys
Date: Dec 29, 2014	PMT completes review of technical proposals
Date: Jan 07, 2015	Contract negotiations, if required
Date: Jan 13, 2015	Notification of Selection/Non Selection
Date: Jan 20, 2015	Contract begins/order placed

All dates are estimated and subject to change. The PMT reserves the right to hold oral presentations with selected proposers.

1.5 EVALUATION CRITERIA:

The Procurement Management Team (PMT) will conduct its evaluation based on the Proposer's written response, oral presentation, if required, and any other documentation of performance for the Commonwealth in order to make a best value selection. The PMT will evaluate the written responses that were submitted on time and which meet the minimum submission requirements based on the following criteria:

1. Compliance with all facets of the technical specification(s) for the buses identified in the proposal.

2. Capability to deliver all buses. Determining factors may include evaluation of production schedule (existing orders) to be filled in state fiscal year 2015.

3. Per bus cost. Determining factors may include:

   a. Reasonable per bus cost
   b. Significant reduction in per unit cost due to the large size of the order
   c. Cost of Components as outlined on Bidder's Price Proposal sheet.

4. Value-Added Components:
   a. Optional items at no cost
   b. Optional component training at no cost
   c. Other value-added incentives (reduced weight, potential fuel economy)

1.6 EVALUATION OF PROPOSALS AND SELECTION PROCESS

1.6.1 BEST VALUE SELECTION AND NEGOTIATION

The PMT may select the response(s) which demonstrates the best value overall, including proposed alternatives that will achieve the procurement goals of the department. The PMT and a selected bidder, or a contractor, may negotiate a change in any element of contract performance or cost identified in the original RFR or the selected bidder's or contractor's response which results in lower costs or a more cost effective or better value than was presented in the selected bidder's or contractor's original response.

The PMT, which may include MassDOT staff, and possibly one or more outside experts, will review and score the Proposals submitted according to the pre-established criteria as set forth below.

1.6.1.1 TECHNICAL EVALUATION CRITERIA
(Evaluation Weight of 65% of Total Score)

Proposals will be evaluated using the following principal selection criteria:

1.6.1.1.1 PRODUCT DESIGN AND PERFORMANCE

The information provided by the Proposer in its technical submittal relating to the buses to be provided will be utilized to evaluate the Proposal in relation to this factor. Vehicle construction and system design, as well as documented reliability, may be used in this evaluation, as well as other design and performance elements of the components that comprise those systems. At a minimum, test results, safety and maintenance factors, and cost of normal operation for the bus design and system components proposed, may be considered in determining a final value for this factor. Weight reduction and Warranty provisions will also be considered.

1.6.1.1.2 PROPOSER’S REPUTATION AND PERFORMANCE

The PMT will consider the capability and reputation of the Proposer as presented in the Proposal or as is determined by review of information available from references or other resources. The evaluation may look at the Proposer’s overall organizational and financial capabilities and consider key components such as organizational reporting structure, quality control, quality assurance, research and development, technical, training and parts support, response time, product capabilities, warranty, ability to furnish multiple bus configurations, bonding capacity, and financial history, as well as other considerations, in reaching a final point determination. The PMT may also look at judgments, liens, Fleet Defect history, warranty claims and the steps that the manufacturer took to resolve these concerns in assessing the overall reputation of the manufacturer.

1.6.1.1.3 DELIVERY SCHEDULE

The PMT will review the proposed delivery schedule for MassDOT’s minimum purchase for state fiscal year 2015. Delivery schedules that fulfill the earliest possible delivery requirements, with evidence that the schedule can be accomplished, may receive higher points for this category.

1.6.1.2 COST PROPOSAL EVALUATION (Evaluation Weight of 35% of Total Score)

The proposed cost as submitted by the Proposer on MassDOT Bidders’ Price Proposal form will be assigned a maximum of 35 points. The Contractor is *required* to use the MassDOT form, without alteration, for submittal of its Cost Proposal.

1.7 PROPOSER MANDATORY QUALIFICATIONS AND RESPONSE REQUIREMENTS

In order to be considered responsive, and to move on to the next phase of the evaluation, the submitted proposal shall have been judged to have met all facets of the technical specifications for the buses identified in this proposal. Each Proposer shall provide the following qualification information for their company. This information is to be provided with the Proposers Inquiries concerning this procurement. Should MassDOT identify a concern(s) with the submitted information, the Proposer will be contacted for further discussion. Any proposal that MassDOT finds not to meet these requirements, and cannot be made to meet these requirements, may be determined to be not responsible and the proposal rejected. The requirements are as follows:

1. Sufficient financial strength, resources and capability to finance the work to be performed and to complete the contract in a satisfactory manner, as measured by the following:

    - Proposer's financial statements prepared in accordance with generally accepted accounting principles of the jurisdiction in which the proposer is located, and audited by an independent certified public accountant; or a statement from the proposer regarding how financial information may be reviewed by MassDOT.
    - Proposer's ability to secure financial guarantees, if required, as evidenced by a letter of commitment from an underwriter, surety or other guarantor confirming that the Proposer can provide the required guarantee.
    - Proposer's ability to obtain required insurance with coverage values that meet minimum requirements evidenced by a letter from an underwriter confirming that the proposer can be insured for the required amount.

2. Evidence that the human and physical resources are sufficient to perform the Contract as specified and to ensure delivery of all equipment within the time specified in the Contract, to include the following:

    - Engineering, management and service organizations with sufficient personnel and requisite disciplines, licenses, skills, experience and equipment to complete the Contract as required and to satisfy any engineering or service problems that may arise during the warranty period.
    - Adequate manufacturing facilities sufficient to produce and factory-test equipment on schedule.
    - A spare parts procurement and distribution system sufficient to support equipment maintenance without delays and a service organization with skills, experience and equipment sufficient to perform all warranty and on-site work.

3. Evidence of satisfactory performance and integrity on contracts in making deliveries on time, meeting specifications and warranty provisions, parts availability and steps proposer took to resolve any judgments, liens, Fleet Defects history or warranty claims, fleetwide campaign repair programs. Evidence shall be by client references.

3. Proposer has been engaged in the manufacture of body on chassis vans and minibuses buses for a period of not less than the past five (5) years; and

5. Proposer has an operation devoted to the manufacture and sale of body on chassis vans and minibuses, with sufficient capacity to assure the delivery of all buses in compliance with the Proposer's submitted bid; and

6. Proposer has adequate engineering and test facilities and necessary equipment to make all required tests or access to same.

7. Pursuant to M.G.L. c. 151A §19A, the Proposer has complied with all laws of the Commonwealth relating to contributions and payments in lieu of contributions to the employment security system; and

8. Proposer provides workers compensation insurance and all other insurance benefits required by M.G.L. c. 152; and

9. Proposer's name does not appear on U.S. Comptroller General's List of Ineligible Contractors for federally-financed and assisted contracts or Proposer is not presently debarred from providing goods and/or services to the Commonwealth under the provisions of M.G.L. c. 29 §29F, or any other applicable debarment provision of any other chapter of the general laws or any rule or regulation promulgated there under.

1.8 PURPOSE OF PROCUREMENT

This RFR has been written to allow MassDOT and the MBTA to purchase vans and minibuses for a period of three years, with two, one year options available. Within this RFR process, MassDOT has included a range of vans and minibuses to be purchased in Year 1, with a minimum number to be purchased by type. Furthermore, MassDOT and the MBTA reserve the right to order additional vans & minibuses or to assign van & minibus options to up to the maximum annual quantity. MassDOT and the MBTA cannot guarantee a minimum number of vans & minibuses to be purchased in Years 2 & 3, as these vehicles are applied for competitively on an annual basis by potential sub-recipient organizations, with greatly varying demand for each vehicle type per year. Therefore, MassDOT and the MBTA have provided a range for Years 2 & 3 to cover estimated quantities based on historic purchasing records. MassDOT and the MBTA are not responsible for payment of any additional buses ordered by an agency assigned

The maximum quantity of additional vans & minibuses for Option Years 1 & 2 can be ordered either by MassDOT, the MBTA or any agency to which MassDOT has assigned available options.

	Year 1	Year 2	Year 3	Option Year 1	Option Year 2
Type E	52 – 55	Up to 100	Up to 110	Up to 110	Up to 185
Type E2	54 – 56	Up to 100	Up to 100	Up to 100	Up to 100
Type C	9 – 12	Up to 65	Up to 65	Up to 65	Up to 65
Type D	29 - 32	Up to 75	Up to 75	Up to 75	Up to 75
Type A	1 - 3	Up to 10	Up to 10	Up to 10	Up to 10

1.9 YEAR 2 & 3 PRICING AND OPTION YEAR BUS PRICING

The price of any Option Year Vehicle shall be the unit price of a base order vehicle adjusted by multiplying the base order price by the following fraction:

Latest Published Preliminary Index Number Prior to Notice of Exercise of Option / Index Number on Effective Date of the Contract

The Index shall be the Producer Price Index for Truck and Bus Bodies, Series No. 1413, published by the United States Department of Labor Bureau of Labor Statistics. The calculated increase shall be established by the above formula and shall not increase.

1.10 MATERIALS REQUIRED FROM BIDDER

The Bidders shall furnish a written guarantee as part of the Technical Bid which is to be included with the bid of the availability of replacement parts for all components used in the equipment for a period of seven (7) years.

The Bidder shall designate local representatives in Massachusetts who will provide full parts and service responsibility for any and all items of the equipment, including component parts not supplied by the Bidder but supplied by other vendors or subcontractors. These representatives shall have the responsibility of expediting parts not immediately obtainable. The representatives shall also be responsible for providing warranty service in accordance with the RFR. Such designations shall be part of the Technical Bid.

1.11 ESTIMATED PROVISIONS

The Commonwealth makes no guarantee that any commodities will be purchased from any contract resulting from this RFR. Any estimates or past procurement volumes referenced in this RFR are included only for the convenience of Bidders, and are not to be relied upon as any indication of future purchase levels.

Alternatives: A response which fails to meet any material term or condition of the RFR, including the submission of required attachments, may lose points or be deemed unresponsive and disqualified. Unless otherwise specified, Bidders may submit responses proposing alternatives which provide equivalent, better or more cost effective performance than achievable under State RFR specifications. These alternatives may include related commodities that may be available to enhance performance during the period of the contract. The response should describe how any alternative achieves substantially equivalent or better performance. The goal of the RFR is to provide the best value of commodities to achieve the procurement goals of the PMT. Bidders who propose discounts, uncharged commodities or services or other benefits in addition to the RFR specifications may receive a preference or additional points under this RFR as specified.

1.12 INTER-DEPARTMENT PURCHASE

The PMT is including an option for MassDOT and the MBTA to purchase units to up to the maximum identified in this RFR document, at the price and terms negotiated by MassDOT. The lead agency MassDOT has established a maximum number of buses to be purchased this year. MassDOT reserves the right to purchase the maximum number of buses without regard to the need for option units. If MassDOT does not utilize the maximum number of units in any or all of the above-stated categories, MassDOT may, at its discretion, enter into a written agreement with other eligible purchasers in an effort to assign the units to other agency (ies).

1.13 ACQUISITION METHOD: Outright Purchase

1.14 REQUEST FOR SINGLE OR MULTIPLE CONTRACTORS: Multiple

1.15 REQUEST FOR USE BY SINGLE OR MULTIPLE DEPARTMENTS

MassDOT is responsible for determining a maximum number of buses to be purchased; for posting the RFR; executing contracts, maintaining the procurement file and managing contract administration issues. Proposal review and award decisions, contract negotiation, ongoing contract monitoring and performance evaluation will be performed by the PMT.

As stated in the description of this procurement, MassDOT may choose to purchase units up to the maximum number of units identified. The selected Contractor shall be available to provide additional related services as needed throughout the procurement. This provision will allow the MBTA the ability to purchase buses at the MassDOT-negotiated price. This does not preclude the PMT from choosing to conduct a new procurement for subsequent purchases related to this program.

1.16 ANTICIPATED DURATION OF CONTRACT

Contract is for (3) three years, with (2) two, one year options to extend.

1.17 ANTICIPATED EXPENDITURES AND COMPENSATION STRUCTURES

It is anticipated that MassDOT, utilizing State and Federal funds, will purchase vans and minibuses, within the quantity range identified in Section 1.8 in Year 1. Approximate value for years 2 & 3 cannot be estimated as of yet by MassDOT and the MBTA due to unknown specific vehicle quantities. Some of the funding for the project will be derived from the Federal Transit Administration (FTA), therefore, the contractor will be subject to any associated Federal terms and requirements, as further identified in the contract.

1.18 DELIVERY AND ACCEPTANCE PROVISIONS

The buses shall be delivered complete, with all necessary appurtenances and equipment, and conforming to all specifications required herein. Adequate documents for securing title shall be provided to the user agency on or before delivery of the bus to the user agency. A bus shall be considered delivered on the date it is received on the user agency's property, complete; is accepted by the user agency; and on which date MassDOT has submitted a purchase order for payment. Any delay in delivery resulting from Common Carrier's operations, accidents, or mechanical failures en route shall be construed as delay beyond the Contractor's control; however, the Contractor shall have the responsibility of releasing bus to the Common Carrier in time to reach the carriers under normal delivery conditions. Provided that the bus are delivered complete (as stated above) and with proper documentation in order to secure title, the signing of the Common Carrier's manifest by the authorized agent or user agency, the bus shall be considered delivered as it relates to the liquidated damages outlined below.

If any bus is delivered over-the-road, a written report shall be submitted by the driver listing all incidents and unusual bus performance during delivery; a comprehensive engineering report shall be submitted to the user agency describing the nature of any service or repair and the cause. All buses shall be delivered to the user agency ready for operation and the Contractor shall assume all responsibility and liability incident to said delivery. Receipt of bus(s) or placement in operation of the bus(s) by a user agency shall not release the Contractor from liability for, and repair or replacement of, faulty workmanship or materials, appearing even after final payment has been made. Risk of loss shall not pass to the user agency until the bus(s) have either been accepted or until the bus(s) are insured and registered, or until the bus(s) are placed in passenger service.

Upon receipt of the bus(s) at each location, the bus(s) shall be inspected by the user agency. The user agency shall not be deemed to have accepted any bus until it has passed all such inspections in the sole and absolute opinion of the user agency. MassDOT will notify the Contractor, in writing, within fifteen (15) days after delivery if the bus has or has not been accepted. The Contractor must respond and schedule any and all repairs in no more than ten (10) calendar days after notification by MassDOT. Correction of items in noncompliance must be made by the Contractor in no more than thirty (30) calendar days after notification by MassDOT of non-acceptance. If after 30 (days) any or all reported items remain incomplete or incorrect, the necessary correction may be made by the user agency or an approved company, with new and/or repaired parts, and the cost of labor for removal and installation of said parts, and the cost of said parts and transportation charge thereon shall be reimbursed to the user agency by the Contractor, or subtracted from monies due. In addition, if after thirty (30) days a mutually-acceptable remedy cannot be accomplished, MassDOT reserves the right to reject the bus(s) and demand replacement.

The Contractor shall provide full and competent engineering service to handle and correct any problems associated with the performance of buses delivered. At least one qualified service representative shall be available to render prompt service.

The order of delivery to the operator shall be determined by MassDOT and the exact delivery dates shall be specified in purchase orders provided by MassDOT.

The first bus unit produced by the Contractor shall be delivered within one hundred and fifty (150) days of receipt of the completed purchase order from MassDOT. It is also expected that a minimum of three (3) buses per week shall be delivered through completion of the order.

In the event that delivery of buses is not made within the specified time period, damage shall be sustained by the operator affected. In such event, the Contractor shall pay to MassDOT as liquidated damages and not as a penalty the sum of $100.00 per bus/per calendar day for each calendar day of delay in excess of the specified date. MassDOT may deduct the sum of liquidated damages from any monies that may become due under this procurement or, if such monies are insufficient, the Contractor or its surety or sureties shall pay MassDOT any deficiency in such monies within thirty (30) days.

In case that delivery of buses under this bid is delayed because of strikes, injunction, government control, or by reason of any cause or circumstances beyond the control of the successful Contractor(s), the time of delivery shall be extended by the number of days of delay resulting from such cause. Delays shall be documented by the successful Bidder. Extensions shall be requested and granted in writing.

The Contractor, prior to delivery, at the request of MassDOT to facilitate processing final payments, shall furnish preliminary invoices.

1.19 PROHIBITED INTEREST

The Contractor agrees that it shall not engage in any conduct which violates the provisions of Chapter 268A of the Massachusetts General Laws regarding the conduct of public employees.

No officer or employee of the Commonwealth shall participate in any decision relating to this Contract which affects his/her personal interest or the interest of any corporation, partnership, or association in which he/she is directly or indirectly interested. No officer, agent or employee of the Commonwealth shall have any interest, direct or indirect, in the Contract or proceeds thereof.

1.20 GENERAL PROVISIONS FOR NONDISCRIMINATION

During the performance of this Contract, the Contractor for himself, his assignees and successors in interest agrees as follows:

1. Equal Employment Opportunity. In connection with the execution of this Contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, national origin, disability, sexual orientation, age national origin, disability, or status as a Vietnam-era veteran. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during their employment, without regard to their race, religion, color, sex, sexual orientation, age, national origin, disability or status as a Vietnam-era veteran. Such actions shall include, but not be limited to, the following: employment upgrading or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

2. Duties of Contractors on Nondiscrimination. The Contractor shall comply with the provisions of the Governor's Code of Fair Practices adopted as Executed Order 74, and as amended by Executive Orders 116, 166, and 227 and Massachusetts General Laws Chapter 151 B, as amended, for the nondiscrimination laws of the Commonwealth which are herein incorporated by reference and are made a part of this Contract. The Contractor further agrees that in the performance of all work after award and prior to completion of the Contract, the Contractor shall not discriminate on the grounds of race, color, religion, national origin, age, sex, sexual orientation, disability, or status as a Vietnam-era veteran in employment practices or in the selection or retention of the subcontractors, and in the procurement of materials and rental of equipment. The Contractor shall send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or

understanding, a notice advising the said labor union or workers representative of the Contractor's commitments under this Section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

3. Duties of Subcontractors on Nondiscrimination. In all solicitations, either by competitive bidding or negotiation, made by the Contractor for work to be performed under a subcontract, and for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this Contract relative to nondiscrimination on the grounds of race, religion, color, sex, sexual orientation, age, national origin, disability or status as a Vietnam-era veteran.

3. Information and Reports. The Contractor shall provide all information and reports required by the Commonwealth on order or instructions issued by them and will permit access to its books, records, accounts, and other sources of information and its facilities as may be determined by the Massachusetts Commission Against Discrimination to be pertinent and ascertain compliance with such orders or instruction. When the information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Commonwealth, as appropriate, and shall set forth what efforts he/she has made to obtain the information.

4. Sanctions for Noncompliance. In the event of the Contractor's noncompliance with the nondiscrimination provisions of this Contract, the Commonwealth shall impose such contract sanctions as it may determine to be appropriate, including, but not limited to:

   (a) Withholding payments to the Contractor under contract until the Contractor complies, and/or

   (b) Cancellation, termination or suspension of the Contract, in whole or in part.

1.21 AIR POLLUTION

All equipment acquired or constructed shall be designed and equipped to prevent or control air pollution in accordance with the criteria issued by the Executive Office of Health and Human Services. However, if regulations of the Commonwealth of Massachusetts or applicable local air pollution regulations are in force, the more restrictive shall govern.

1.22 MOTOR BUS POLLUTION REQUIREMENTS

The Contractor shall certify in writing that:

(a) The horsepower of the bus is adequate for the speed, range and terrain in which it will be required to operate and also to meet the demands of all auxiliary power equipment;

(b) Emission from the exhaust shall not be visible.

1.23 ANTI-BOYCOTT AGREEMENT

The Contractor warrants, represents and agrees that during the time this Contract is in effect, neither it nor any affiliated company, as hereafter defined, will participate in or cooperate with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E, Massachusetts General Laws. If there shall be a breach in the warranty, representation and agreement contained in this paragraph, then without limiting such other rights as it may have, the Commonwealth shall be entitled to rescind this Contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly owned by the Contractor, or by a person or persons or business entity or entities directly or indirectly owned by the Contractor, or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interest of the Contractor, or which directly or indirectly owns at least 51% of the ownership interests of the Contractor.

1.24 FEDERAL LAWS AND REGULATIONS

The Contractor understands that Federal laws, regulations, and related administrative practices applicable to this project may change and the changed requirements will apply to the bid as required, unless FTA determines otherwise.

1.25 LABOR PROVISIONS – NON-CONSTRUCTION CONTRACTS

To the extent applicable, the Contractor agrees to comply with the U.S. Department of Labor regulations, “Labor Standard Provisions Applicable to Non-construction Contracts Subject to the Contract Work Hours and Safety Standards Act” 29 C.F.R. 5.5

(b)(1) Overtime Requirements. No contractor or subcontractor contracting for any part of the Contract work which may require or involve the employment of laborers or mechanics in any workweek in which he or she is employed on such work to work in excess of forty (40) hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty (40) hours in such workweek.

(b)(2) Violation; Liability for Unpaid Wages; Liquidated Damages. In the event of a violation of the clause set forth in paragraph (b)(1) of this section, the Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $10,000 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty (40) hours without payment of overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(b)(3) Withholding for Unpaid Wages and Liquidated Damages. The Contractor shall, upon its own action or upon written request of an authorized representative of the U.S. Department of Labor, withhold or cause to be withheld, from any monies payable on account of work performed by the Contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph(b)(2) of this section.

(b)(4) Subcontract. The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (b)(1) through (4) of this section and also a clause require the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth I paragraphs (b)(1) through (4) of this section.

(c) Payrolls. In addition to the clauses contained in paragraph (b), in any contract subject to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited, the Contractor shall maintain payroll records during the course of the work and shall preserve them for a period of three (3) years from the completion of the contract for all laborers and mechanics, including guards and watch men working on the Contract. Such records shall contain the name and address of each such employee, social security number, correct classification, hourly rate of wages paid, daily and weekly number of; hours worked, deductions made, and actual wages paid. Further, the contracting officer shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspections, copy, or transcription by authorized representatives of the (Contractor) and the U.S. Department of Labor, and the Contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

1.26 ASBESTOS ABATEMENT PROGRAM

The Contractor agrees that asbestos-containing materials will not be employed in the construction of buses identified in this Contract unless it can be proven unequivocally by the Contractor that no suitable asbestos-free product exists.

1.27 RELEASES OF OIL AND HAZARDOUS MATERIALS

The Contractor shall comply with the Massachusetts Department of Environmental Protection Regulations for Releases of Oil and Hazardous Materials and all other requirements of the Environmental Protection MassDOT regulation of the Clean Air Act and other provisions of law, or amendments thereto including the laws or regulations of local municipalities.

2.0 WARRANTY REQUIREMENTS

The Contractor shall warrant that each vehicle and all its component parts complies with the Federal Motor Vehicle Safety Standards, the Commonwealth of Massachusetts Motor Vehicle Code Regulations, emission standards set by the Motor Vehicle Pollution Requirements, 49 CFR parts 84 and 85, and these specifications. The Contractor agrees to promptly replace and install free of charge any part that may fail by reason of defective material or workmanship. It is expressly agreed that MassDOT, its lessees or its subleases, if any, may enforce this warranty. The Contractor shall provide written documentation that warranty service will be available through any dealership of the OEM chassis manufacturer and body manufacturer, and that such dealerships exist a maximum of 50 miles from MassDOT’s Headquarters location. The Contractor shall coordinate and communicate all warranty service claims on entire vehicle including body, chassis, lift and other components. Delivery shall be as a "turnkey" purchase. Specific assemblies, subassemblies and components shall have warranty coverage as listed below.

Chassis OEM Warranty: Ford

- Bumper to bumper — three (3) years, or 36,000 miles, 100% parts and labor.

- Cab, chassis, and frame rails, against corrosion perforation — five (5) years, 100% parts & labor.

- Front and rear axles, and drive train -- three (3) years, or 36,000 miles, 100% parts & labor.

- Transmission – Five (5) years, or 60,000 miles, 100% parts & labor.

- Gas Engine – Five (5) years or 60,000 miles, 100% parts & labor

- Emissions -- five (5) years or 50,000 miles, 100% parts and labor.

- Safety restraint and air bag -- five (5) years or 50,000 miles, 100% parts and labor.

- Ford Driver's door -- three (3) years, 36,000 miles, 100 % parts and labor.

Chassis OEM Warranty: GM/Chevrolet

- Bumper to bumper — three (3) years, or 36,000 miles, 100% parts and labor.

- Cab, chassis, and frame rails, against corrosion perforation — Five (5) years or 100,000 miles, 100% parts & labor.

- Front and rear axles – three (3) years or 36,000, 100% parts & labor.

- Transmission – Five (5) years or 100,000 mile powertrain warranty, 100% parts & labor.

- Gas Engine -- five (5) years, or 100,000 miles, 100% parts & labor, with $100.00 deductible after 36,000 miles.

- Emissions -- five (5) years or 50,000 miles, 100% parts and labor.

- Safety restraint and air bag -- five (5) years or 50,000 miles, 100% parts and labor.

Body manufacturer's warranty:

- Air Conditioning & Auxiliary Heating Systems -- two (2) years, 100% parts and labor; or manufacturer's warranty, whichever is longer.

- Lift -- Five (5) years, unlimited miles 100% parts and labor; or manufacturer's warranty, whichever is longer.

- Vehicle body structure and cross members -- five (5) years, or 150,000 miles, 100% parts and labor.

- Vehicle body panels, doors, and battery compartment, against corrosion **--** five (5) years, or 100,000 miles, 100% parts and labor.

- Seats and seat frames -- five (5) years, unlimited miles, 100% parts and labor

- All windows -- Three (3) years, unlimited miles, 100% parts and labor.

- Mirrors and bumpers -- two (2) years, unlimited miles, 100% parts and labor.

- Body electrical wiring -- One (1) year, unlimited miles, 100% parts and labor.

- Balance of vehicle components shall have one (1) year, unlimited miles, 100% parts and labor.

Warranty cards for all major equipment, components and sub-components shall be provided to MassDOT or its designee with the delivery of the vehicle. All warranty cards shall be completely filled in to the extent possible, except for the in-service date. All warranty periods shall begin on the in-service date of the vehicle. At the time of delivery, all manufacturers' warranty cards shall include dealer codes.

During this warranty period, the vehicle shall maintain its structural and functional integrity. The warranty shall be based on regular operation of the vehicle under the operating conditions prevailing in Massachusetts. Manufacturer's required maintenance schedule shall be provided to MassDOT.

If MassDOT detects a defect within the warranty period, it shall promptly notify the Contractor's representative. The Contractor shall correct the defect within five (5) working days. If the Contractor fails to correct the defect within five (5) working days, MassDOT reserves the right to have the defect corrected from another source and the Contractor shall reimburse all repair costs incurred; or MassDOT deduct such cost from payment due Contractor.

2.1 FLEET DEFECT

In the event that 20% or more cumulative defects/failures of any kind in the same components in the same or similar application be registered at any time prior to the expiration of the two-year period from the date the last vehicle of this Contract is delivered to MassDOT sub-recipients, MassDOT shall determine the existence of a systemic design or manufacturing defect, and may determine the existence of a fleet defect. The Contractor shall, upon ten day notice from MassDOT of such determination submit a correction plan and upon approval of such correction plan from MassDOT shall make and implement any such design modifications, repairs, adjustments and replacement on all vehicles of this contract as shall correct and prevent such failures, at no cost to MassDOT or MassDOT sub-recipients.

Notwithstanding the absence of other specific evidence of such design or manufacturing defect, the existence of cumulative failures in twenty percent (20 %) of all vehicles delivered under this contract shall, in and of itself, constitute a basis for a fleet defect determination.

Notwithstanding the date of commencement or expiration of any warranty period applicable to any vehicle, component, system, or subsystem, the Contractor shall retrofit/repair all vehicles in service, and shall implement identical retrofit/repair work to the vehicles yet not delivered. The need of such retrofit/repair work shall extend the warranty period on such affected vehicle, component, system, or subsystem by one (1) year from the completion of such work, or from the expiration of the previously effective warranty, whichever is later. If, as a result of a fleet defect there is a premature failure of consumable parts, the Contractor shall provide replacement to MassDOT sub-recipients at no additional cost. In the event that MassDOT sub-recipients replace such components, the Contractor shall reimburse MassDOT sub-recipients in accordance with the prevailing industry rates for such components.

Contractor shall provide written proof with the Request for Change documents that warranty service shall be available to MassDOT sub-recipients and/or its assigns, from Contractor and/or subcontractors (working under this contract), at an approved manufacturer's facility a maximum of 50 miles from MassDOT's headquarters location, for the chassis, lift and other non-OEM equipment mounted on the vehicle. The written proof of service letter shall contain the name of the company, address, phone number, and service contact's name, as well as any other instructions required to obtain service.

3.0 TRAINING REQUIREMENTS

The Contractor shall present an outline of the training program to MassDOT within fifteen (15) days after issuance of Notice to Proceed. This training program shall detail the individual sections of the training program including but not limited to: Drivetrain, Suspension, Body, Frame, Brakes, Accessories, Lift, Emergency door, Passenger door, Interior and Exterior lighting, Electrical system/battery, Auxiliary heater and Exhaust system.

The Contractor shall conduct training on all components of vehicles, including but not limited to chassis, body, lift, wheelchair securement, and air-conditioning system. The training shall take place at Contractor's facility located a maximum of 50 miles from MassDOT's headquarter building location before the end users pick up each vehicle.

For maintenance training, approximately a total seventy five (75) participants are required to be trained and the Contractor is required to travel to each sub-recipient's location as designated by MassDOT and as few as 2 participants may be trained in any single session.

3.1 MANUALS

The Contractor shall provide 60 operator manuals and each sub-recipient shall receive two of these per location and shall be provided to the sub-recipients during operator training.

ATTACHMENT A

TECHNICAL SPECIFICATIONS

VANS AND MINIBUSES WITH LIFT (Type E, E2, C, and D)

1.0 SCOPE:

1.1 These specifications outline the Commonwealth of Massachusetts and the Massachusetts Bay Transportation Authority, through the Massachusetts Department of Transportation's (MassDOT) requirements for new and ready for service cutaway type extended minibuses equipped with a side-door lift. The design life of these buses shall be 5 years for types E and E2 and 7 years for types C and D. Listed below are the types of vehicles described in this specification:

1.1.1 Type E:	Single Rear Wheel type van, 9,900 lbs. GVWR, minimum. Seating: 8 seated passengers and no wheelchair positions, and 2 wheelchair positions and 4 seated passengers.
1.1.2 Type E2:	Dual Rear Wheel type minibus, 11,500 lbs. GVWR, minimum. Seating: 12 seated passengers and 2 wheelchair positions (10 seated passengers, and 1 active wheelchair position), and 3 wheelchair positions and 4 seated passengers.
1.1.3 Type C:	Dual Rear Wheel type minibus, 14,500 lbs GVWR minimum. Seating: 14 seated passengers and 2 wheelchair positions (12 seated passengers, and 2 active wheelchair positions), and 4 wheelchair positions and 6 seated passengers.
1.1.4 Type D:	Dual Rear Wheel type minibus, 14,500 lbs GVWR minimum. Seating: 16 seated passengers and 2 wheelchair positions, and 4 wheelchair positions and 10 seated passengers.

All salient features, i.e., RPM, HP, transmission speed, mph, etc. are described elsewhere within this specification.

1.2 Definitions: Following are the definitions of special terms used in these specifications.

(1) dBA. Decibels with reference to 0.0002 microbar as measured on the "A" scale.
(2) Curb Weight. Weight of vehicle including maximum fuel, oil, and coolant; all equipment required for operation and required by these specifications, but without passengers and the operator.
(3) Seated Load. One hundred fifty pounds for every designed passenger seating position and the operator, and three hundred fifty pounds for every wheel chair position.
(4) SLW (Seated Load Weight). Curb weight plus seated load.
(5) GVWR (Gross Vehicle Weight Rating). Curb weight plus gross load.
(6) Fireproof. Materials those will not burn or melt at temperatures less than 2,000° F.
(7) Fire-Resistant. Materials that have a flame spread index less than 150 as measured in a radiant panel flame test per ASTM-E 162-75.

1.3 Abbreviations: The following is a list of abbreviations used in these specifications.

(1) ADA: Americans with Disabilities Act
(2) ANSI: American National Standards Institute
(3) ASHRAE: American Society of Heating, Refrigerating, and Air Conditioning Engineers
(4) ASTM: American Society of Testing and Materials
(5) CFR: Code of Federal Regulations
(6) CNG: Compressed Natural Gas
(7) DPU: Department if Public Utility
(8) EPA: Environmental Protection Agency
(9) FMCSR: Federal Motor Carrier Safety Regulation
(10) FMVSS: Federal Motor Vehicle Safety Standards
(12) FTA: Federal Transit Administration
(12) NHTSA: National Highway Traffic Safety Administration
(13) MassDOT: Massachusetts Department Of Transportation
(14) RMV: Registry of Motor Vehicles
(15) NTP: Notice To Proceed
(16) OEM: Original equipment (Vehicle body or chassis) Manufacturer
(17) SAE: Society of Automotive Engineers
(18) VOC: Volatile Organic Compound

1.4 Vehicles shall meet all applicable FMCSR, FMVSS, Commonwealth of Massachusetts, Registry of Motor Vehicles, and EPA requirements as well as ADA Accessibility Guidelines for Transportation Vehicles. Manufacturing processes shall adhere to industry standards and to SAE recommended practices. In case of a discrepancy between any of the regulations and these specifications, the regulations shall prevail. No advantage shall be taken by the Contractor and/or manufacturer in the omission of any part or detail necessary to make the vehicles compliant with all regulations, even though such part or detail may not be clearly stated in these specifications. Contractor shall obtain a certificate from the vehicle manufacturer that the product offered for this procurement fully meets with all the regulations and requirements listed here above, and provide the certificate at time for “Request for Change”.. The manufacturers shall certify that vehicles have been tested for 4 years, 100,000 miles “Altoona Test” as required by FTA, and provide a copy of the test report at the time for “Request for Change”. MassDOT shall review the test report and may disqualify a product if the report raises concerns regarding safe operation and/or the maintenance of the vehicle. Vehicles offered shall meet all the required tests and standards prior to date of proposal submission, and shall fully comply with these specifications.

A body manufacturer contending that their product fully complies with the “Altoona” test requirement specified above by virtue of the product being ‘grand-fathered-in’ shall submit a letter from the FTA stating that such product indeed satisfactorily complies with the required test. MassDOT shall not release any payment to the Contractor until the receipt of such letter. Additionally, MassDOT shall not give any relief on production, inspection and delivery schedules stipulated elsewhere in these specifications, on account of scheduling the Altoona test.

1.5 Body Certification: The body shall be built on a Ford, or approved equal, chassis and shall fully comply with Ford’s Motor Home and Transit Bus Quality Vehicle Manufacturing Program. A letter of certificate from Ford verifying current and complete compliance with this requirement shall be provided with the Proposal”. Failure to provide such certificate may result in the body manufacturer being deemed noncompliant. If the option for CNG is selected, the vans and minibuses shall also comply with Ford’s QVM requirements for CNG conversions.

1.6 The Contractor shall be the manufacturer's authorized service and parts stocking dealer, or a manufacturer with a service and parts stocking dealer in the Commonwealth of Massachusetts. At a minimum, the Contractor shall maintain one contractual relationship with a Massachusetts dealership, or be a parts stocking dealer for providing authorized service for training, delivery, warranty and parts, throughout the 'life' of these vehicles. The bidder shall provide with the bid, the name, address, and phone number of the Massachusetts contact person responsible for providing such service.

1.7 The proposer shall provide the following documents and/or information to MassDOT at the time Proposals are submitted.

1.7.1 All test documents, certificates, Altoona test report for the vehicles offered, and FTA forms.

1.7.2 Printed brochure, manufacturer's model name or number, and floor plans of the vehicles offered. The floor plans shall include the passenger seat locations with hip to knee and aisle width dimensions, mobility device positions, operator's position, locations of all doors, wheelchair lift, and auxiliary heater. The floor plan shall also show the exterior body dimensions (length, width, and height), rear overhang, wheelbase; and shall clearly state that the rear overhang of the body is less than or equal to one third of the total length of the vehicle.

1.7.3 Weight distribution analysis of the vehicles shall be performed in the maximum passenger load configuration. Weight analysis shall be based on a capacity to support 150 lbs. per ambulatory passenger and operator, and 350 lbs. per mobility device.

1.8 Within fifteen (15) days of Contractor selection by MassDOT, the Contractor shall submit a list of components and sub-component parts on the vehicles identified by manufacturer, country of origin, and cost; and submit the final assembly cost, in accordance with the FTA requirement (49 CFR part 663) for revenue rolling stock.

1.9 Within fifteen (15) days of NTP, the Contractor shall submit the following documents to MassDOT:

1.9.1 A delivery schedule for all vehicles to be built for this procurement. The schedule shall include: expected chassis delivery to body manufacturer, milestones in the production and completion of the prototype unit and the regular production units, anticipated dates of inspection and delivery of each vehicle to MassDOT, and the required training. The delivery schedule shall include names and telephone numbers of those responsible at the manufacturer's location for completing the various phases and milestones of the project.

1.9.2 Two (2) sets of layout drawings for each vehicle, manufacturer recommended body mounting procedure, and the electrical circuit diagrams for heating and air conditioning covering the body manufacturer installed systems and their connections to OEM system. The layout drawings shall be clear and legible original drawings. Xerox, faxed, or emailed copies are not acceptable. The drawings shall be to a scale of ½" =1', and shall show the dimensions of the vehicle and include total height with roof hatch in venting position, length including both the bumpers, inside and outside width, front and rear overhangs, and the wheel base. The drawings shall clearly state that the vehicle body dimensions comply with the rear overhang restriction. The drawings shall show top, left, right, and rear views of the vehicle. The interior floor plan shall show seating, foot print(s) of the mobility device(s) with the securement, lift location, flip-up and fold-away seats (if any) in both positions, aisle width, stanchions and modesty panels. The floor plan shall clearly show all critical dimensions pertaining to the securement tracks for the mobility devices, such as the lengths, center-to-center spacing, and the location from sidewalls and seats. Two transparent side views, one from each side, shall be provided showing seat height, hip to knee and headroom dimensions. A paint/decal print showing all decals specified, both exterior and interior, shall also be submitted. Any items purchased or work performed before this submittal receives MassDOT's final approval, shall be at the Contractor's expense and risk, and may be non-reimbursable. Layout drawings shall be provided to MassDOT for each sub-recipient, which shall include a list of all vehicle modifications and options purchased at 100% cost by the sub-recipient; pricing of modifications and options shall be provided to MassDOT as part of this submittal.

1.10 Within thirty (30) days of NTP or upon receipt of sub-recipient requested modifications and options. Whichever comes first, the Contractor(s) shall submit the following documents to MassDOT:

1.10.1 Two (2) sets of layout drawings for each vehicle, manufacturer recommended body mounting procedure, and the electrical circuit diagrams for heating and air conditioning covering the body manufacturer installed systems and their connections to OEM system. The layout drawings shall be clear and legible original drawings. Xerox, faxed, or emailed copies are not acceptable. The drawings shall be to a scale of ½" =1', and shall show the dimensions of the vehicle and include total height with roof hatch in venting position, length including both the bumpers, inside and outside width, front and rear overhangs, and the wheel base. The drawings shall clearly state that the vehicle body dimensions comply with the rear overhang restriction. The drawings shall show top, left, right, and rear views of the vehicle. The interior floor plan shall show seating, foot print(s) of the mobility device(s) with the securement, lift location, flip-up and fold-away seats (if any) in both positions, aisle width, stanchions and modesty panels. The floor plan shall clearly show all critical dimensions pertaining to the securement tracks for the mobility devices, such as the lengths, center-to-center spacing, and the location from sidewalls and seats. Two transparent side views, one from each side, shall be provided showing seat height, hip to knee and headroom dimensions. A paint/decal print showing all decals specified, both exterior and interior, shall also be submitted. Any items purchased or work performed before this submittal receives MassDOT's final approval, shall be at the Contractor's expense and risk, and may be non-reimbursable. Layout drawings shall be provided to MassDOT for each sub-recipient, which shall include a list of all vehicle modifications and options purchased at 100% cost by the sub-recipient; pricing of modifications and options shall be provided to MassDOT as part of this submittal.

1.11 Submittal:
Contractor's scope of work shall include supplying the following documents at specific stages of the procurement process as stated.

1.11.1 Documents due with Proposals:

A) Certificate that the body manufacturer fully complies with the chassis manufacturer's Quality Vehicle Manufacturing program; per section 1.5.
B) Name and contact information; per section 1.6.
C) Altoona Test report, FMVSS compliance certificate, and FTA forms; per section 1.7.1.
D) Printed brochures and manufacturer's model names or numbers of all vehicles, and floor plans; per section 1.7.2.
E) Weight distribution analysis; per section 1.7.3.
F) Name of the body manufacturer; per section 1.11.
G) Details of any chassis modification work done; per section 2.3.6.
H) BTU ratings for dash heater and the auxiliary heater, as well as the proposed location of the auxiliary heater; per section 2.4.
J) A/C system Specifications and condenser installation details; per section 2.5.1.

K) Maximum vehicle electrical system current draw with all accessories operating; per section 2.6.3.
L) Body manufacturer's self-certification regarding FMVSS compliance; per section 2.7.
M) Drawing and FMVSS 220 certificate for the roll cage; per section 2.7.1.2.
N) Sample of headliner; per section 2.7.1.3.
O) Sample of interior sidewall liner; per section 2.7.12.1.
P) Lift ADA interlock system; per section 2.10.17.
Q) Written proof of availability of warranty service; per section 11.4.
R) Details of representatives responsible for Technical Assistance; per section 12.0

1.11.2 Documents due after Contractor selection:

1.11.2.1 Due within fifteen (15) days of the Contractor selection.
FTA required costs and manufacturer details; per sections 1.8.
1.11.2.2 Due within fifteen (15) days after issuance of NTP:
  A) Delivery schedule; per section 1.9.1.
  B) Outline of the training program; per section 9.1.
1.11.2.3 Due within thirty (30) days after issuance of NTP:
  A) Vehicle layout drawing; per section 1.10.2
1.11.2.4 Due at the time of prototype buy-off inspection.
  A) Results of A/C pull down test; per section 2.5.3.
  B) A/C system installation certificate; per section 2.5.9.
  C) Results of Body Water Test; per section 2.7.16.
  D) Certificate of securement system compliance with impact test; per section 2.9.1.
  E) Securement system installation certificate; per section 2.9.11.
  F) Lift installation certificate; per section 2.10.19.
  G) Post delivery FMVSS compliance certificate.
  H) Post-delivery Buy-America compliance certificate.
1.11.2.5 Due before final acceptance of the vehicle.
  A) Warranty documents (provided to each sub-recipient / one copy for each vehicle to MassDOT.
  B) Manuals (provided to each sub-recipient / one copy for each vehicle to MassDOT.

1.12 Vehicles for each type shall be of one body manufacturer. These four types of vehicles may be of the same body manufacturer, or up to four different body manufacturers**.** Each bidder shall identify the manufacturer(s) whose products they propose to offer for this bid, at the time for "Request for Change". Bids submitted with more than two body manufacturer's products shall be rejected. Typical fleet discounts and any rebates should not be listed separately since the prices should already reflect these discounts.

1.13 All vehicles shall be completely manufactured at the body manufacturer's facility, unless the CNG conversion option is exercised. This shall include body complete with the paint job, installation of seats, air conditioning system, wheelchair lift, and all aftermarket items.

2.0 EQUIPMENT:

2.1 Engine:

Engine for type E & E2 shall be a 5.4 liter minimum displacement Ford Triton V8, or approved equal, gas engine with 255 HP @ 4500 RPM and 350 LB-FT torque @ 2,500 RPM. Engine for types ~~E2, and~~ C, and D shall be a minimum 6.8 liter minimum displacement Ford Triton V10, or approved equal, gas engine with 305 HP @ 4,500 RPM and 420 LB-FT torque @ 4,250 RPM. Engine shall be designed to operate on regular fuel and shall comply with the latest applicable emission control standards.

2.1.1 Engine shall be equipped with the maximum size oil cooler available from OEM.
2.1.2 Engine cooling system shall be of the maximum size available from chassis manufacturer for the specific chassis and this application. The system shall be equipped with increased capacity tubular radiator, and shall have a coolant recovery element within its design.
2.1.3 Engine cooling system shall be protected with permanent type antifreeze to -34° F. The coolant used shall meet or exceed the engine manufacturer's specification.
2.1.4 Sound Reduction Package from OEM shall be included with the engine.

2.2 Transmission:

2.2.1 Transmission for all types shall be and electronically controlled, 5-speed, automatic overdrive type.
2.2.2 Transmission shall have OEM installed maximum capacity oil cooler. .
2.2.3 Drive train selection shall ensure that the vehicles are capable to perform to a minimum 65 mph top speed on a level road at SLW. During the road test MassDOT shall test loaded pilot vehicles for compliance. The Contractor or the body manufacturer shall make provision to load the pilot vehicle equivalent to SLW during the buy-off inspection. All other vehicles of the contract shall be tested without load to perform to a minimum 65 mph speed during the buy-off inspections.

2.3 Chassis:

2.3.1 Refer section 1.1 for the gross vehicle weight rating (GVWR), and the axle weight ratings (GAWR). The vehicle offered shall meet or exceed these ratings.
  2.3.1.1 Rear axle shall be full floating; one piece forged steel housing and single gear reduction.
  2.3.1.2 Rear axle ratio shall allow the vehicle to operate at a minimum cruising speed of 65 mph, with an ability to operate at a speed of 70 mph for maneuverability.
  2.3.1.3 Drive shaft protectors shall be provided to prevent contact with the roadway or with parts of vehicle in the event the drive shaft becomes disconnected.
  2.3.1.4 Exhaust shall exit at rear on the left side of the vehicle and shall extend beyond the body and the bumper. The complete exhaust system shall meet or exceed the Commonwealth of Massachusetts (Department of Public Utilities) and the U.S. Government noise level and exhaust emission requirement. A certificate insuring compliance shall be provided to the buyer with each vehicle. The tail pipe shall be supported by chassis OEM standard exhaust support system and shall extend minimum two inches outside the vehicle body walls.
2.3.2 Power steering shall be as supplied by the chassis manufacturer.
2.3.3 Service brakes shall be chassis OEM supplied. The brake system shall be equipped with heavy duty split power hydraulic system with power booster or vacuum hydraulic system.
  2.3.3.1 Four-wheel anti-lock type, disc brakes shall be provided by OEM.
2.3.4 All wheels and tires shall be chassis OEM supplied only, steel belted radial highway type. For types E and E2, a total of eight tires, including two wheel mounted spare tires, shall be provided. For types C and D, a total of seven tires, including one mounted spare tire, shall be provided. The spare tire assembly(s) shall be identical to the wheels and tires on the vehicle, i.e., the same

manufacturer, model and size. If the vehicle is equipped with tire pressure monitoring system, the spare tire and wheel assemblies shall be equipped with the same tire pressure monitoring system.

2.3.4.1 All wheels including the spare shall be chassis OEM powder coated white.

2.3.4.2 Recommended tire pressure shall be decal-applied in black or contrasting color over the fender or body near each tire, in one-half inch high letters.

2.3.4.3 Front and rear mud flaps shall be provided. Mud flaps shall be hard rubber and shall be secured in a manner to prevent contact with the exhaust components and wheels. The mud flaps shall have five (5) inches clearance from the ground to the bottom of the flap.

2.3.5 Fuel tank shall be USDOT approved type with protective shield, shall have the capacity as specified in the appropriate attachment; and shall meet FMVSS 301 for types E, E2, and C and D. If the CNG option is selected, the tanks shall meet FMVSS 303. A single fuel tank is required for types E, E2, and C.

2.3.5.1 Fuel filler cap shall be tethered to the vehicle body.

2.3.5.2 Fuel tank shall not be located below the lift door.

2.3.5.3 Fuel tank capacities shall be as follows:

a. Type E shall have a minimum 40 gallon fuel tank.

b. Type E2 shall have a minimum 40 gallon fuel tank.

c. Type C shall have a minimum 55 gallon fuel tank.

d. Type D shall have a minimum 55 gallon fuel tank.

e. If the CNG option is selected, the fuel tanks shall have a gasoline equivalent gallon capacity of not less than 40 gallons.

2.3.6 Any frame or chassis modification and/or frame extension work shall comply with the chassis manufacturer recommended practices as outlined in chassis OEM manual for body builders and vehicle modifiers; and with federal, Massachusetts DOT regulations and Department of Public Utility (DPU) regulations. The details of such work shall be submitted at the time for “Request for Change”. MassDOT shall not allow any chassis modification unless the details of such modifications are submitted to and approved by MassDOT. MassDOT shall not allow cutting the chassis frame between the two axles and altering the wheelbase.

2.3.7 Suspension shall be supplied by the chassis OEM and shall conform to the following:

2.3.7.1 Front - independent coil springs to match required GAWR capacity.

2.3.7.2 Rear - two stage multi-leaf springs to match required GAWR capacity.

2.3.7.3 Front and rear shock absorbers and stabilizer bars shall be supplied by OEM.

2.3.7.4 Vehicle shall stand level when parked on level ground, with and without load. Difference in levels measured at the streetside and curbside rear ends of the chassis frame rails as well as at the rear corners of the body shall be no more than 1/4". If the vehicle requires helper spring, the body manufacturer shall provide them.

2.3.7.5 Vehicle type E shall have rear helper springs installed. Vehicle types E2, C, and D shall have a Mor/ryde, RL suspension system for transit buses, or approved equal, installed. Installation shall be in compliance with the manufacturer’s recommendations.

2.3.8 Cab shall include following items:

2.3.8.1 Dashboard gauges shall include: voltmeter, ammeter, fuel, water-temperature, oil-pressure, speedometer, odometer, and an hour meter wired to the engine. Dash indicator lights shall be used for high beam indicator, directional, 4-way flasher action lights and high engine temperature.

2.3.8.2 Variable speed windshield wipers and washer shall be provided on both sides. Wipers shall have an adjustable intermittent speed feature.

2.3.8.3 Electric horn(s) as available from chassis OEM shall be provided.

2.3.8.4 Driver sun visors shall be provided.

2.3.8.5 Brake warning light and ABS malfunction warning light shall be provided.

2.3.8.6 Four user defined upfitter switches shall be on the chassis from the OEM. Separate light switches shall be provided for cab area lights, coach interior lights, and exterior lights. Stepwell and lift door lights shall be actuated when the passenger door and lift door is opened. All switches shall meet or exceed load ratings of the circuit they control.

2.3.8.7 An interior mirror shall be provided to give operator a full view of passenger compartment. The mirror shall not interfere with driver's headroom when entering and exiting operator's seat area. Nominal dimensions of the mirror shall be 6 x 9 inches.

2.3.8.8 Hood locking device shall have an easily accessible, interior release.

2.3.8.9 Tilt steering wheel shall be supplied.

2.3.8.10 All cab-interior secured compartments shall use a non-key latch.

2.3.8.11 Vehicles shall have a compartment adjacent to the operator's position for storing maps and other supplies.

2.3.8.12Vehicle shall be provided with an OEM AM/FM radio with four (4) speakers. Two speakers shall be located in the cab section and two in the rear of the passenger compartment. The radio shall contain a digital clock.

2.3.8.13 Vehicles shall be equipped with Daytime Running Lights (DRL). DRL shall be from chassis OEM. Headlights shall be halogen, aerodynamic style.

2.3.8.14 The chassis shall not be equipped with cruise control.

2.3.9 Two (2) heated, directional, LED marker light mirrors with additional convex mirrors are to be provided. Mirrors shall be at least 7½" x 8" - one to the left and one to the right of the driver. Vehicle types C, and D shall be remote-controlled. The mounting bases for the rearview mirrors shall be sail mounted (on the driver's door) and have aluminum contour base with through mount for support on the curbside (fender mount). The area through which the mirrors are bolted shall be reinforced and made rigid to prevent vibration and sealed to prevent corrosion. Exterior rearview mirror shall incorporate a separate convex mirror in the lower section. Each mirror shall be firmly supported and adjustable to give the driver clear views past left and right rear of the bus. Mirrors shall be designed to swing in, in the event of a collision to prevent excess body damage. The OEM interior rearview mirror shall remain. The interior mirror above driver shall be provided to view passenger compartment.

2.3.10 Front bumper on all vehicles shall be a Romeo Rim HELP bumper or approved equal. The rear bumper on all vehicles shall be a Romeo Rim 'Help', or approved equal. The rear bumper shall be equipped with Intermotive's Hawkeye Plus reverse assistance system and shall consist of four (4) bumper mounted sensors, wiring harness and dash mounted LED display. A two (2) inch wide red and white, Reflexite reflective tape cut to approximately eighty four (84) inches length from material per AW Direct Identifier no. RCT-2150, or approved equal, shall be applied on the body above the bumper. MassDOT shall review the reflective tape at the pre production meeting.

2.4 Heater/Defroster:

The heater/defroster shall be a combination of chassis OEM dash heater and an auxiliary heater(s) provided by body manufacturer. The combined output of the heaters shall be not less than 50,000 BTUs for types E and E2 and shall be no less than 65,000 BTUs for types C, and D. The heaters selected for the auxiliary heater(s) shall be sufficient to heat interior of vehicle up to 60° F in 30 minutes, when the outside temperature is 0° F and be able to maintain this temperature in operation. The bidder shall provide details of complete heater/defroster system, and proposed location of the auxiliary heater with the proposal.

2.4.1 An in-line quarter-turn shut off valve with brass body and 316 stainless steel stem and ball shall be installed in both the supply and return lines of the auxiliary heater. The valves shall be located under the vehicle body below the operator's area, and painted red, or shall have bright colored handles for ease of identification. The shut off valves and heater hoses shall be securely clamped to the chassis with rubber insulated clamps. The hoses shall be routed in a manner that they do not rub against any part of the chassis frame at any time.

2.4.2 Heating system vents shall be directed into the aisle so as to eliminate hot air blowing on the feet or legs of a seated passenger or the operator.

2.4.3 Both the OEM and the aftermarket heaters shall have independent controls located within easy reach and view of the seated operator. The aftermarket heater shall have a minimum of three output speeds. Constant torque clamps and silicon heater hoses shall be used for all the auxiliary heaters.

2.4.4 An electric "Welcome Mat" type stepwell heater, or approved equal, shall be provided under the first step, for melting snow and ice. MassDOT shall review details of the stepwell heater at the pre-production meeting.

2.5 Air Conditioning:

2.5.1 General Requirements and Testing: Front and rear air-conditioning shall be provided. A/C units, at ambient conditions of 95° F and 50% humidity, shall be capable of dropping the vehicle inside temperature 25° F within 30 minutes of listed situation at standard park high idle. Compressor, condenser, evaporator and other components of the A/C system shall be sufficiently rated to meet these specifications. A/C units shall be manufactured by Carrier A/C Industries, Thermo King, Trans/Air, or approved equal. A skirt-mounted condenser shall be provided with a minimum of two fans and an expanded aluminum protective guard for the tube/fin bundle. The condenser assembly shall be secured to the vehicle chassis or floor steel structure to hold it firm during all phases of vehicle operation on all types, except for type E and E2, where a skirt mounted condenser is not required. Self-tapping fasteners shall not be utilized. Bidders shall submit A/C system specifications and condenser installation details, at the time for "Request for Change" documentation.

2.5.2 All air-conditioning lines shall have a nylon barrier in compliance with SAE J206 and shall be attached to the body with rubber insulated steel clamps.

2.5.3 An air-conditioning system pull-down test shall be conducted on each vehicle body type and for each system type, per following test procedure. The vehicle shall be heat soaked to at least 95° F for 6 hours in a controlled atmosphere, while maintaining inside and ambient humidity at 50%. The temperatures during the soaking cycle and during the pull-down test shall be recorded at a total of eleven (11) locations; front, midship, and rear of the passenger compartment, at three different levels, 12 inches from ceiling, 12 inches from floor, and 12 inches above hip line; one probe buried under the seat cushion of a seat near the center of the coach, and one in the ambient. During the soaking cycle the humidity inside the vehicle and in the ambient shall be maintained (or, if required, raised by using a humidifier or a steam jenny) at 50% and the temperature at 95° F. The vehicle shall be started and run at high idle, and the air conditioning system shall be started. The temperatures shall be continuously observed and recorded once every ten minutes during the soaking cycle, and once every minute during the 30 minute pull-down test, using a computer data monitor located outside the test booth. The total system electrical draw shall be noted every ten minutes during the pull-down test. During the test the inside temperature of the vehicle shall lower gradually and uniformly throughout the inside of the coach. The temperature measured at any two locations shall not differ more than 3° F. The system shall not create any hot or cold spots inside the vehicle. System electrical draw shall not exceed 60 amps at high idle speed, with all accessories operating during the test. The A/C system shall be deemed to have passed the test when the average inside temperature is 70° F or lower at the end of 30 minutes, while maintaining ambient outside temperature at 95° F. Test results shall include the vehicle soak time and temperature, relative humidity of the ambient air, a chart showing temperature drop inside the vehicle during the test, final steady state temperature after 30 minutes of test, and the total ampere draw of the electrical system during the test period. These test results shall be supplied to MassDOT at the time of buy-off inspection.

2.5.4 A/C pull down test shall be conducted in a booth (designed and built) for such test, and approved by MassDOT. A minimum of one vehicle pull down test shall be required to validate each separately (BTU) rated system for each type of minibus.

2.5.5 Front dash HVAC equipment and ductwork shall be chassis OEM factory installed.

2.5.6 Rear A/C evaporator shall be fastened to the roof bows. Areas around and behind the ceiling mounted evaporator shall be properly concealed with smooth trimmed close out panels. The color of the covers and the closeout panels shall be coordinated with the coach interior.

2.5.7 Only R134a refrigerant shall be used in the A/C system and the Contractor shall label the system accordingly.

2.5.8 Evaporator drains shall drain below the floor line. Drain lines shall be made of high quality rubber or silicone and be concealed from the interior. The covers for the rear A/C evaporator and covers for the drain line shall have no sharp corners or edges. Plastic drain lines are unacceptable.

2.5.9 The Contractor shall arrange for a representative of the air conditioning system manufacturer to inspect, approve and certify the system installation in the vehicle. The certificate shall be provided to MassDOT at the time of pilot vehicle buy-off inspection. Installation of the A/C system on all production vehicles shall strictly adhere to the certified installation procedure.

2.5.10 A/C specific requirements for type E & E2: The air conditioning system shall a heavy-duty, factory installed OEM driver's area system with a minimum total system output of 35,000 BTUs. The system shall be a single compressor system. The ceiling mounted evaporator shall have a blower assembly rated at a minimum of 700 CFM. The return air filter shall be located at the evaporator coil and shall be easily accessible for maintenance. High and low pressure switches shall protect the air conditioning system. The passenger area evaporator shall be controlled by an independent fan speed switch. Fan speeds shall include off, low, medium and high. The driver's area evaporator fan shall be controlled by OEM supplied controls.

2.5.11 A/C specific requirements for types ~~E2,~~ C, and D: The air conditioning system shall be a heavy duty, factory installed OEM driver's area system with a minimum total system output of 70,000 BTUs. The system shall utilize two (2) compressors with nominal ratings of 10 C.I.D. each, both of which function as separate systems, i.e., a standalone system for the front and a standalone system for the rear of the vehicle. The rear mounted evaporator shall have a blower assembly rated at a minimum of 740 CFM. The condenser housing shall be constructed of heavy duty aluminum and have motors that pull air through the condenser coil from the outside of the skirt and exhaust air away from vehicle floor. The condenser shall be mounted so as to ensure that the entire coil face area is exposed to direct airflow through the coil. The filter/dryer and sight glass shall be located on the condenser and all connections on the condenser and filter/dryer shall utilize o-rings. The filter/dryer shall be remotely mounted so as to function as an accumulator and prevent liquid refrigerant from returning to the compressor. All electrical connections at the condenser shall be corrosion resistant. The passenger area evaporator shall be controlled by an independent fan speed switch. Fan speeds shall include off, low, medium and high. The driver's area evaporator fan shall be controlled by OEM supplied controls.

2.6 Electrical System:

2.6.1 Vehicles shall have OEM supplied 12 volt, dual battery system of minimum 1300 CCA.

2.6.1.1 Location and installation of the batteries shall ensure easy access for replacement and maintenance. Battery(s) shall be installed and securely clamped on a roll out tray inside a compartment. Straps are not acceptable for battery hold clamps. For minibus types E and E2 the OEM design with one battery under the hood and a single battery in the rollout tray shall be supplied. For minibus types C and D, the battery compartment shall be secured under the chassis allowing the batteries to be rolled out beyond the chassis and the body for an easy access for maintenance.

2.6.1.2 Battery roll out tray, rollers, tracks, fasteners, and other components in close contact with batteries, shall be made of material that shall not corrode in the battery-acid environment during the entire life of the vehicle.

2.6.1.3 Battery compartment door shall have a slam latch or other positive latching system and shall be equipped with a door retainer to hold the door in the open position for service.

2.6.1.4 Battery compartment shall have a closed box type construction to keep the road dirt and grime out. Compartment shall have suitably sized ventilation holes.

2.6.2 Vehicles shall have Intermotive Products, Advanced Fast Idle System (AFIS), InPower FastIdle system, or approved equal, idle control system that shall automatically increase engine speed if the voltage drops below 11.5 volts, and the vehicle is in Park and the park brake is applied.

2.6.3 Alternator: All vehicle types shall have a Penntex 250 amp PX-7 series alternator, or OEM supplied 225 amp alternator or approved equal. The Contractor shall provide documents, calculations and test results to show that the alternator adequately satisfies the total electrical load plus 15% reserve. The total load rating shall be verified on the prototype vehicle, and the alternator rating may be revised, if so dictated by the test results.

2.6.4 A model 326 Signalstat, Ecco “Smart Alarm” model SA-917, PRECO-MATIC model 1040, or approved equal type reverse-motion (back-up) alarm shall be provided which adjusts the volume of the alarm signal to a level of at least 5 dB above the background noise level, and alerts people in the vicinity when the transmission is put in reverse gear.

2.6.5 Adequately rated manually resettable circuit breakers shall be used to protect all electrical circuits, and the breaker panel shall be conveniently accessible for service. An ‘as built’ wiring legend shall be laminated and posted inside the panel which shall correspond with the components. A complete wiring diagram shall be provided in the owner’s manual.

2.6.5.1 The box or panel shall be moisture proof and sealed to prevent any possible outside water intrusion.

2.6.5.2 Panel-box door shall be large enough to allow replacement of the components, and shall be equipped with a door retainer to maintain the door in the open position for service.

2.6.6 All electrical wires shall be copper and enclosed in heat stabilized black nylon loom(s). All exposed electrical junction boxes shall be constructed of steel or plastic and shall be sealed for protection against salt, chemicals, and road debris. All connectors shall be Weatherpack, or approved equal. Inside and underbody terminals shall be sprayed with suitable anti-corrosive spray.

2.6.6.1 Wires penetrating through metal or other body or chassis material with acute edges, shall have commercial grommets of elastomeric material to prevent chafing, rubbing or cutting of electrical wires or insulation.

2.6.6.2 Electrical wires and looms under the vehicle shall be fastened with vinyl/rubber insulated steel clamps at every 12 inches to prevent flexing.

2.6.6.3 Wiring inside the breaker panel shall not pass over the top of the breakers.

2.6.6.4 All vehicle lighting, interior as well as exterior, shall fully comply with all applicable sections of Handbook for Massachusetts Vehicle Inspections.

2.6.6.5 Brake lights, taillights, turning signal indicator lights, and backup (reverse) lights shall all be separate and independent. Brake and taillights shall be red, turn signal lights shall be amber, and backup lights shall be white in color. Four-way flashers for hazard indication shall be wired together with the turn signal indicator lights. All light fixtures shall be TruckLite, Peterson, Dialight, or approved equal, four (4) inch diameter polycarbonate lens sealed housing type**.** A third brake light shall be installed above the emergency door. The backup (reverse) and license plate lights and all other lights shall be LED. Vehicles shall have a rear license plate holder with a light.

2.6.6.6 Five amber marker lights shall be provided in front of the vehicle and five red clearance lights shall be provided on the rear of the vehicle. The arrangement shall be three lights in center and one at each end. The marker lights and clearance lights shall be LED type, in a non-rusting armored housing. These lights shall be wired to turn on and off with the headlights.

2.6.6.7 Armored LED type, flashing, amber directional signal lights shall be provided behind the passenger door on the curbside, and behind the operator’s door on the streetside of the vehicles.

2.6.6.8 A conspicuous pair of separate seven (7) inch amber LED lights shall be installed near the outer rear corners of the roof in a manner harmonious with the vehicle design. These lights shall flash simultaneously when the lift door is open. These lights shall also be controlled by a dash mounted switch so that they may be activated without the lift door being opened. The flasher unit shall be replaceable from inside the vehicle.

2.6.7 General Requirements of Electrical System

2.6.7.1 Insulated wiring shall conform to the current and latest revised versions of SAE standards J1127 and J1128. Insulation material shall be selected for the maximum ambient temperature of its on-vehicle environment per table 1 of SAE standard J1292 latest edition.

2.6.7.2 Insulated wiring shall be color-coded and permanently heat or ink stamped at a minimum of six inch intervals with number or function codes. There shall be no duplication of the identification codes. All wiring shall meet the current requirements of SAE J1292 and J1128 and be Type SXL or GXL. Each wire's gauge, code identification, and SAE type (GPT, HDB, SXL, etc.) shall be referenced on electrical diagrams covering all contractor installed electrical systems and their connections to OEM electrical systems.

2.6.7.3 Wiring shall be continuously enclosed in non-metallic loom meeting current SAE standard J562, and be adequately supported and routed for protection from heat, moisture, solvents, corrosion, road debris, abrasion and tension. Wiring shall be of sufficient length to permit proper positioning as well as replacement of terminals at least twice without excessive tension. Each wiring harness over 5 feet long, excluding battery cables, shall contain at least ten (10) percent excess wires for spares that are the same size as the largest wire in the harness. Battery cables shall be minimum No. 4 AWG type SGX meeting current SAE standard J1127. Body builder shall use AMP (PIDG) Pre-insulated Diamond Grip Terminals, or approved equal, installed with a tool that shall not release until crimp cycle is completed, or the terminals shall be machine crimped.

2.6.7.4 Quality and workmanship of the body wiring shall match or exceed the industry standard. The connections between the two wirings shall be made using Signal-Stat, ETC Molex, AMP, Packard WeatherBar, or approved equal receptacles, sockets, connectors, etc. Adequate extra wire length shall be provided for two re-terminations. Only ring terminals and plug enclosed pin connectors shall be used in manufacturing the vehicle. The use of butt connectors is not permitted.

2.6.7.5 This specification shall apply to alternator, battery, air conditioning system, lift, fuses, circuit breakers, and all other electrical components.

2.7 Body Construction:

2.7.1 Vehicle construction shall meet applicable Federal Motor Carrier Safety Regulations (FMCSR) and Federal Motor Vehicles Safety Standards (FMVSS). A copy of the manufacturer’s self-certification regarding compliance with all applicable standards shall be provided during both, the pre-award and post-delivery Buy America Audits as required by the FTA.

2.7.2 Gun-installed huckbolt fastenings, rivets, or equal shall be utilized on all exterior panels, rub-rails, and all other locations where stress is concentrated. Where huckbolts cannot be used, all nuts, bolts, slips, washers, clamps, and like fasteners on the exterior and interior of the unit shall be zinc or cadmium plated or phosphate coated to prevent corrosion. No sheet metal screws shall be permitted.

2.7.3 Torx screw fasteners will be accepted in areas where stress concentration is not significant. Torx screw fasteners should not represent more than 15 percent of the total number of body fasteners used. Barrel bolts shall be used on stanchions and grab rails where fastened to the body. A diagram indicating where Torx screws are used shall accompany the technical proposal.

2.7.4 Before assembly, all exterior and interior metal parts shall be given a through anti-corrosion treatment. The material shall be flame-resistant and shall not emit noxious fumes when burning. Sidewall panels shall be primed on both sides.

2.7.5 All exterior seams shall be constructed such that they will shed water. In no case shall the sealing of the panels be dependent on caulking alone. Sikaflex, or approved equal, sealer shall be used on whenever sealers are used.

Vehicle Types E and E2

2.7.6 The body shall be cavity-wall construction securely fastened to the underframe structure so that the entire frame shall act as one unit without any movement in joining. Front, side, and back panels shall be secured to frame members and posts so as to result in a permanent, fully-integrated structural unit adequately reinforced with steel posts and rails at all points where stress concentration may occur so that the vehicle may adequately carry loads for which it was designed and withstand road shock. The sidewall design shall provide maximum shoulder room. Both sidewalls and rear shall be constructed as composites of 24-gauge galvanized steel panels on the exterior and FRP panels (.090” thick) on the interior surface. Between these panels shall be a grid network of 1½” square, 18-gauge steel tubes. The composite shall be formed by using structural adhesive set under high pressure. Vehicle skirts shall be constructed of a structurally sound and strong material that resists breakage and substantial deformation. A body construction, which consists of 1” thick hardened vertical Honeycomb Kraft with ¼” thick FRP, is acceptable in lieu of the above-specified construction.

2.7.7 The vertical sidewalls shall be reinforced with a grid network of 1½” square 18-gauge steel tubes. A crash rail of at least 16-gauge galvanized steel, at least 5” wide and forced into a “C” channel with at least 1” flanges shall extend the entire length of the passenger body of the bus and across the rear of the bus (except at doors), to protect passengers in the event of side or rear impacts. The guardrail shall be integrated into the exterior of the side panels.

2.7.8 Side and end-frame sections shall be designed for maximum strength. End posts and all front, side, and back panels shall be secured to the floor structure below floor level to reduce shear.

To increase tolerance for added strength, frame sections are to be jig-welded. Each frame section is to be tube-grid network constructed of 1½” x 1½” 18-gauge galvanized steel tubes. The 1½” x 1½” 18-gauge steel tubing shall be used in all areas, especially around the passenger entrance door and at all points where stress may occur. Body frame sections of 1½” 170 gauge steel z-sections are acceptable as long as all other specifications are met. Body construction, which consists of 1” thick, hardened vertical Honeycomb Kraft with ¼” thick FRP is acceptable in lieu of the above-specified body construction.

Vehicle Types C and D

2.7.9 The body shall be cavity-wall construction securely fastened to the underframe structure so that the entire frame shall act as one unit without any movement in joining. Front, side and back panels shall be secured to frame members and posts so as to result n a permanent, fully-integrated structural unit adequately reinforced with steel posts and rails at all points where stress concentration may occurs so that the vehicle may adequately carry loads for which it was designed and withstand road shock. All exterior panels shall have the physical properties equal to 20-gauge steel. Interior panels shall have the physical properties of 24-gauge steel and shall be covered with scuff-resistant interior trim material. Exterior panels of 30-gauge galvanized steel and interior panels with the physical properties of 24-gauge steel will be accepted if the space between the panels is completely filled with a foam-insulating material with a density of at least 1.6 pounds per cubic foot and adhered to the panels with a structural adhesive.

2.7.10 Side and end-frame sections shall be designed for maximum strength. End posts shall be designed to resist shear. To increase tolerance for added strength, frame sections are to be jig-welded. Each frame section is to be tube-grid network constructed of 1” x 2”, 1½” x 1½”, or 1” by 1” 16-gauge steel tubing. The 1” x 2” or 1½” x 1½” 16-gauge steel tubing shall be used in all stress areas, especially around the passenger entrance door and at all points where stress may occur. Body frame sections of 1½” 18-gauge steel z-sections and closed “C” channel framing of 2½” x 1½” minimum 16-gauge CRS are acceptable as long as all other specifications are met. Body construction, which consists of 1” thick, hardened vertical Honeycomb Kraft with ¼” thick FRP is acceptable in lieu of the above-specified body construction.

2.7.11 Roof:

2.7.11.1 Roof shall meet FMVSS 220 with respect to static rollover protection. A steel cage structure shall be supplied. The steel roof bows for the roll cage structure shall extend down to, and be directly and continuously attached to the floor steel structure. Bus bodies using a composite design fulfill this requirement if longitudinal and transverse steel sections are fully integrated in the roof and sidewall matrix and the design was tested for compliance with all applicable standards in this configuration.

2.7.11.2 The roll cage drawing, roll over test report, and the FMVSS 220 certification shall be provided with pre-qualification documents showing that the steel roll cage meets the strength required for a successful compliance with the roll over test.

2.7.11.3 Roof construction shall allow a clear floor to ceiling height in the passenger compartment of 75 inches minimum, with insulation in place. Floor to ceiling minimum height of 74 inches shall be accepted only on the vehicles that may require a raised floor construction to comply with the seating plan. Insulation shall be installed full-length, in ceiling and in sidewalls. The headliner shall be of fiberglass, steel, or FRP. A steel headliner shall be covered with automotive grade cloth, Melamine, or vinyl; white or light gray color, to match with the vehicle interior. A sample of the liner shall be submitted with pre-qualification documents, for MassDOT’s review.

2.7.11.4 Ribs or bows for roll cage shall extend below roof line as one piece or as extended with welded gusset. Roof shall be of a single continuous panel with seams at front and rear caps only. The roof seams shall be maintenance free and shall require no maintenance at all throughout the entire useful life of the vehicle.

2.7.12 Wall Construction:

2.7.12.1 Exterior sidewalls shall be made of galvanized steel, galvannealed steel, Alucobond Composite side walls only, Luan-Fiberglass composite, pre-painted aluminum**,** or approved equal.

2.7.12.2 Edges of the window cutouts made in the wall shall be properly and thoroughly sealed to preclude any water or moisture infiltration inside the wall through leaking or weeping.

2.7.12.3 Use of two-sided tape shall not be acceptable as a method of attaching sidewalls.

2.7.12.4 A 1 ½" to 2" wide nonmetallic rub rail shall be provided on each exterior side of the vehicle.

2.7.12.5 One, interior integral sidewall impact rail shall be located at the passenger floor line.

2.7.12.6 One, interior integral sidewall impact rail shall be located between the side windows and floor line.

2.7.12.7 All body panel joints shall be sealed with Sikaflex polyurethane sealer, or approved equal.

2.7.13 Floor:

2.7.13.1Floor structure and the base frame shall be made of rust prohibitive Galvalume steel, or shall be of primed and painted steel construction. The wheel housings and stepwells shall be 12 gauge, 304 stainless steel. When floor structural steel is primed and not painted or primed and painted, the floor structural steel shall be primed with a primer applied to a dry film thickness of not less than 3.5 mils and meeting ASTM-B117 (2000 hour salt spray test). At the end of the test no part of the primed steel shall be exposed.

2.7.13.2Floor shall have steel side rails which shall tie the cross members together. All crossmembers shall have a yield strength of not less than 50,000 psi and shall be placed 24 inches on center**.**

2.7.13.3 Floor shall have a steel or aluminum belly pan.

2.7.13.4 Floor shall have a sub-floor covering of a minimum 5/8" thick, A-B Marine grade plywood conforming to 2002 APA Standard 5.6.1, and stamped with appropriate APA stamp on backside of panel and edge marked over the steel cross members. A steel or aluminum belly pan shall be provided. All edges and joints of the plywood, including those around the wheel wells and step well, shall be moisture sealed. The countersunk headed floor board fasteners used to connect the wood to the floor steel structure shall have large head diameter to preclude the possibility of the wood pulling itself through the head. Ends of the fasteners shall not stick out more than ¾" below the plywood floor causing safety hazard. Plywood floor shall be sanded to a smooth finish.

2.7.13.5 Vehicle floors shall be covered with Gerfloor Tarabus Sirius, no. 6727 Anthracite NT, or approved equal vinyl flooring. Flooring from under the seats shall be coved up as one piece from the floor to the wall mounted seat rails on both sides. Coving shall be achieved via a smooth radius at the corner where the floor meets the sidewalls. The floor covering as well as transitions of floor material to the stepwell area shall be smooth and present no tripping hazards. The standee line shall be a yellow, 2" wide band provided between the passenger compartment and vestibule area.

2.7.13.6 Floor covering shall be applied to the plywood per manufacturer recommended procedure. Floor covering and all its edges shall be glued. Seams shall be glued and there shall be no space between mating pieces of vinyl. Installation of floor covering shall be completely free of air bubbles, debris or other defects. Finish floor surface shall not show any uneven levels or other irregularities. Metal covers or fasteners shall not be used to cover the seams or to hold the floor material in place.

2.7.13.7 Floor covering shall meet FMVSS 302 addressing fire and flame retardence and smoke suppression, and shall not emit toxic and/or lethal hydrogen chloride fumes if ignited. Flooring material shall be of a low maintenance easy to clean type with minimum coefficient of friction of 0.6 for the steps and floor area.

2.7.13 Steps and Stepwell:

2.7.14.1 All step risers, and stepwell area sidewalls shall be covered with RCA Rubber Co. smooth rubber in standard black, 1/8 inch thick, or approved equal, flooring.

2.7.14.2 All step treads shall be covered with RCA Rubber Co. ribbed Transit-Flor® treads in standard black, 3/16 inch thick with stainless steel backing and three (3) inch yellow nosing, or approved equal.

2.7.14.3 Ground height to first step shall not exceed 11 inches.

2.7.14.4 Type E vehicles shall have no more than two (2) steps. Types E2, C, and D shall have no more than three (3) steps.

2.7.14.4 Tread depth on all steps shall be equal and shall comply with all regulatory requirements.

~~2.7.14.5 Steps shall be enclosed on three sides and a framed aluminum or fiberglass guard with a 1 ½ inch rubber seal shall be installed to protect the steps from the elements.~~

2.7.14.5 Angled or half-steps are not acceptable. No vehicle shall be accepted if equipped with this type of step.

2.7.15 Front Passenger Entrance Door:

2.7.15.1 Vehicles shall be equipped with “transit door system.” Ambulatory passenger door(s) shall be manual with a control device located conveniently for the driver. The door system shall be designed as follows: The door opening device shall be designed not to interfere with the removal of the engine cover. The door-opening device shall latch when in fully opened or closed positions. Door latch shall be black. To meet this specification, a minimum 1½ inch tube shall be utilized as a primary stanchion for the door opener. Door rod shall not exceed ½ inch beyond connection point nearest driver. The primary stanchion shall be constructed from one continuous tube with rounded corners. No angle welded ends shall be accepted. Stanchion placement shall not interfere with driver’s leg space or ability to enter the passenger compartment. The stanchion shall not protrude past the leading face of the engine cover, nor into the stepwell area. The stanchion shall be braced in a manner to be secured to the bus in such a way that it does not come loose for the life of the vehicle and that it shall not impede entry into the vehicle, freedom of movement for the operator’s legs or access to the engine cover.

2.7.15.2 The control bar shall be securely mounted to the front passenger door. Each separable part of the door opener shall be available for purchase without purchasing the entire unit. The front door shall be the double fold type, with flexible soft rubber cushion at least 1½” in width on the meeting edge. For vehicle types E and E2, the passenger door shall have a clear opening width of at least 25½” and a full height of 80 inches minimum. For vehicle types C, and D, the clear opening entrance with a minimum 30” door opening width and a full height of 80 inches minimum.

2.7.15.3 Door structure shall be architectural grade, double anodized aluminum with marine grade stainless steel screws and corner braces for maximum protection from corrosion. Stainless steel pivot hinges shall be galvanic isolated from the aluminum frame structure to prevent corrosion. Aftermarket door hinge pins shall be secured properly. Tempered glass panels shall be double sealed to prevent water infiltration, using automotive quality rubber seals, not plastic or vinyl.

2.7.15.4 A padded header panel shall be provided inside over the entrance door and covered with yellow vinyl.

2.7.16 Emergency door:

2.7.16.1 The vehicle shall be equipped with a rear opening emergency door with a minimum clear opening of 32 inches wide and 48 inches in height. The door shall have an upper and lower window with the maximum permissible size that will fit in the door assembly. Appropriate operating instructions shall be affixed to the door. No seat shall block access to the emergency door. Emergency door shall be able to be locked from the inside. An interlock system shall be provided to prevent the vehicle from being started when the ignition is turned to the “ON” position, while the emergency door is locked. Signage shall be provided on the dash for the operator.

2.7.16.2 A warning buzzer shall be provided that shall be activated when the emergency door is opened and the vehicle is in the “START” position. An additional warning buzzer should activate once the vehicle is shut off. The driver shall be required to physically walk to the back of the vehicle to disarm the buzzer. An audible and visual alarm shall be provided, and be activated should the rear emergency door be locked while the vehicle is running.

2.7.16.3 Emergency exit shall be equipped with a red LED light wired to work in conjunction with the headlights or may be illuminated when the key is turned to the “ON” position.

2.7.16.4 The door shall have a header pad covered with yellow vinyl.

2.7.16.5 The door shall be permanently marked "EMERGENCY DOOR" on the interior with red, and exterior with black, clearly legible letters on white background. The letters shall not be less than two inches high.

2.7.16.6 Emergency door shall have a readily accessible interior release handle. The handle shall be painted red. Directions for operation of the release handle shall be labeled red and posted immediately adjacent to the handle. The seats near the emergency door shall not obstruct the operation of the release handle.

2.7.16.7 The door shall have bulb type, heavy duty weather-strip.

2.7.17 Lift Door:

2.7.17.1The location of the lift door shall be behind the rear axle or behind the passenger entrance door of the vehicle. Door height shall be a minimum of 65” clearance between the floor and the top of the door opening and a minimum entryway of 45” wide for vehicles with a length of twenty-two (22) feet or less. Door height shall be a minimum of 68” clearance between the floor and the top of the door opening and a minimum entryway of 45” wide for vehicles with a length greater than twenty-two (22) feet.

2.7.17.2 Lift door shall be a double panel door. Each door panel shall have a window. The window size shall be the maximum permitted by panel dimensions.

2.7.17.3 The door shall be steel or aluminum framed double panel type, with a minimum of two, heavy duty steel hinges, or a full length stainless steel piano hinge for each panel secured to structural members and reinforced on both sides.

2.7.17.4 Doors shall utilize a positive securement to prevent doors from closing during lift operation.

2.7.17.5 A header pad shall be provided inside the lift door and covered with yellow vinyl. Header pad shall not reduce the clear door opening required for ADA compliance.

2.7.17.6 The door shall have bulb type weather-strip.

2.7.17.7 The door shall have an exterior lock and handle.

2.7.17.8 If the location of the door is next to the passenger door, vehicle body design shall ensure that open position of one door does not obstruct full clear opening of the other door. In such situations the rearward door panel when opened, shall be fully flush with the sidewall. The door hold-open device shall be suitably modified to hold the door open in this position.

2.7.17.9 The lift door shall be wired with an ADA compliant interlock.

2.7.17.10 The upper part of the door shall be protected with ¼" plastic to protect the door from lift platform deployment related damage. The front and rear doors shall open completely and shall be secured in the open position by latch and keeper style securement. An audible warning signal shall be activated in the vehicle in the event that the lift doors are opened and the parking brake is not engaged.

2.7.18 Operator's Door:

2.7.18.1 Vehicle shall have a chassis OEM provided operator's door on the streetside, with a full roll up window and a key lock mechanism.

2.7.18.2 The door shall have adequate weatherproofing, including a rain gutter, to eliminate exposure to outside elements to occupants of the vehicle.

2.7.18.3 There shall be a side step for driver access on Type E2, C, and D vehicles only.

2.7.18.4 There shall be an entry grab handle, to ease access for the driver into the cab.

2.7.19 Roof Escape Hatch:

2.17.19.1 One, Transpec Low profile model 1075 'Dual Purpose Safety Vent', Specialty MFG Prolo 9245, or approved equal safety roof hatch shall be provided in the area above the rear axle.

2.7.20 Windows

2.7.20.1 Windshield shall be minimum (AS-1), operator's side windows and rear door window shall be (AS-2) and all other windows shall be minimum (AS-3) grade safety glass and shall meet FMVSS 205, 212, and 219. To the extent permissible by Federal law, windows shall be factory tinted with a 31% light reduction.

2.7.20.2 All exposed edges of glass shall be banded or ground smooth.

2.7.20.3 All windows shall have black frame, T-slide windows with upper opening. Sliding windows shall comply with the DOT regulations, and shall have no sharp edges or corners.

2.7.20.4 Full emergency exit kick-out windows with quick release latch, per FMVSS 217 with a minimum of one emergency window on each side of the vehicle. The windows shall open outwards. A decal of instructions for opening the emergency exit windows shall be labeled inside on the windows in close proximity to the release latch. The decal shall be UV-protected, and shall not fade with time. The force required to open the emergency windows shall not be more than 10 lbs. All emergency windows, when opened, shall cause an audible signal to sound that alerts the driver that the window is open.

2.7.20.5 Entire window cutouts shall be thoroughly sealed on the interior and exterior using appropriate sealant to preclude possibility of water and moisture getting inside the wall. Window garnishing shall be installed with a close and smooth joint at the bottom, without any sharp edges or corners. Fasteners around the garnishing shall be driven straight in with no burrs or sharp corners, and shall not pose any safety hazard.

2.7.20.6 One window shall be provided in the transition panel between the windshield and the ambulatory passenger door. The window shall be as large as possible, for each vehicle size, to allow driver a clear view of the curb.

2.7.20.7 A Fresnel wide angle fisheye lens shall be provided on the upper rear window.

2.7.21 Insulation:

2.7.21.1 Insulation shall completely fill the space in all areas between the roof and side exterior panels (including rear and above driver area) of the vehicle. Insulation shall be flame-retardant and non-toxic. The successful bidder shall be required to provide evidence to MassDOT representatives at the time of delivery that insulation is flame retardant and non-toxic.

2.7.21.2 Insulation shall be provided between the exterior and interior wall and ceiling panels to achieve minimum R-6 rating. Insulation material shall have sound deadening and vibration reduction qualities, it shall be moisture proof, and shall prevent wicking of water. If insulation material can absorb moisture then it shall be bagged. Loose insulation is not acceptable. MassDOT representatives will review the insulation material at the pre-production meeting.

2.7.22 Interior Body Walls:

The interior of the compartment shall be finished with mildew-resistant material. Interior lower side panels shall be scuff resistant.

2.7.22.1 Interior body walls below the windows for types E and E2 shall be constructed of fiberglass reinforced plastic (FRP) or ABS plastic; in a color that harmonizes with the interior of the vehicle. Bidders shall submit samples of interior finish with pre-qualification documents. Front vertical panel above the operator's compartment and the rear panel above the emergency door around the A/C evaporator, may be lined with heavy duty cloth or heavy duty vinyl liner. Chassis OEM interior color shall be grey.

2.7.22.2 Interior body walls below the windows for types C and D shall be constructed of fiberglass reinforced plastic (FRP) or 0.025 inch thick vinyl clad aluminum in a color that harmonizes with the interior of the vehicle. Bidders shall submit samples of interior finish with pre-qualification documents. Front vertical panel above the operator's compartment and the rear panel above the emergency door around the A/C evaporator, may be lined with heavy duty cloth or heavy duty vinyl liner. Chassis OEM interior color shall be grey.

2.7.22.3 The upper cab area including the ceiling shall be covered with vinyl, Fiberglas, or ABS plastic material that coordinates the color of the OEM cab interior. ABS plastic used shall be laminated to have rigidity equal to or better than that of the Fiberglass of the same thickness.

2.7.22.4 All interior materials shall be flame retardant and comply with federal and state laws.

2.7.22.5 An enclosed space or compartment with a minimum of 4,300 cubic inches volume of useable unobstructed space shall be provided for stowing material and/or supplies (e.g. flashlight, safety belts, reflectors, etc.). The compartment may be located above the windshield in the driver's area only. The compartment shall present no obstacle to the driver and must be a minimum of 60 inches from the floor. The compartment shall have a 1 inch minimum lip to prevent stored materials from accidentally falling out. The compartment access door(s) shall also have a bracing mechanism to enable the driver to remove material with both hands with the door securely supported. The door shall be hinged at the top to prevent the door from swinging open in the event that the primary latch fails.

2.7.23 Passenger Compartment Lighting:

2.7.23.1 Passenger compartment lighting shall be provided to give sufficient interior light for both safety and security. A minimum of twelve (12) foot-candles of illumination measured at thirty-six (36) inches above the floor over each two-passenger seat shall be provided. All interior light fixtures shall be LED located so as to provide a reasonably uniform diffusion of light within the passenger compartment, the vestibule and the stepwell area. Lights in the passenger compartment shall be located no more than eight (8) inches below the ceiling on either the wall or transition panel. The lamps shall be located or shielded so as to prevent direct rays of light striking the windshield. Details of interior lighting shall be provided in the vehicle drawings to be submitted within fifteen days after NTP.

2.7.23.2 Cabin interior lights shall not be directly connected to OEM dash lights or head light switch but shall have a separate circuit breaker protected switch. The lights shall operate with or without the engine running. When both the engine and the interior light switch are in the "OFF" position, adequate lighting shall be provided in the cabin when the passenger door is open.

2.7.23.3 Two interior LED dome lights (one on each side of the bus) shall be activated without the key in the ignition and shall be controlled by the dash light dimmer switch.

2.7.23.4 Minimum two lights shall be provided in the stepwell area, one hooded and flush mounted light shall be installed to the side of the stepwell and another outside the passenger door to illuminate the loading area. The outside adjustable lift spotlight shall be grounded to the vehicle's headlights and operate only when the lift door is open. A door-operated switch shall switch-on these lights when the passenger door opens.

2.7.24 Stanchions and Guard Rails shall be provided as follows:

2.7.24.1 Stanchions throughout the vehicle shall feature textured, heaviest-duty, pre-molded, energy-absorbing padding on all vertical and horizontal members. Padding is to be yellow in color.

Guardrail bends (if any) shall be formed with smooth radii, and shall have no kinks, sharp corners or edges. Guardrails shall be located approximately thirty (30) inches above the floor.

2.7.24.2 Stanchions shall be 1" to 1¼" diameter stainless steel tubing and shall be anchored (particularly in the roof) to steel plates. Steel plates shall be 18-gauge steel (minimum). All stanchion connections shall be of the barrel-bolt design. Adequately sized stainless steel fasteners shall be used to secure the ends of all stanchions, guard rails, and grab rails into the ceiling, floor, and sidewall steel structure so that they provide full support when passengers lean on them. Top cap brackets connecting stanchions to the ceiling shall be straight when installed.

2.7.24.3 Diagonally-installed entrance grab railings shall be constructed of 1" to 1¼" stainless steel and shall feature a non-slip textured surface from end to end instead of padding. The rails must be yellow from end to end.

2.7.24.4 Modesty panel shall be installed to the left of the passenger entrance behind the driver. The modesty panel shall be padded to the passenger side of the panel and have a vinyl covering. Color of vinyl shall match interior of vehicle. Sheet metal screws shall not be used as fasteners to secure any panels, or grab rails.

2.7.24.5 A guardrail shall be provided in back of the operator's seat from the wall to a vertical stanchion. The rail shall be a minimum of 24" and a maximum of 30" above the floor. This rail shall not interfere with the operator's seat in any position and the vertical stanchions shall be located to provide maximum aisle width.

2.7.24.6 A floor-to-ceiling stanchion and modesty panel shall be located to the left rear of the stepwell. A diagonal support railing shall be provided from the stanchion and shall curve in such a way as to assist passengers in climbing and descending steps. The diagonal support railing shall attach at one end to the floor-to-ceiling stanchion and at the other end to the bottom step.

2.7.24.7 A floor-to-ceiling stanchion and modesty panel shall be located to the left rear of the stepwell. A diagonal support railing shall be provided from the stanchion and shall curve in such a way as to assist passengers in climbing and descending steps. The diagonal support railing shall attach at one end to the floor-to-ceiling stanchion and at the other end to the bottom step.

2.7.24.8 A diagonal support railing equal to the specifications provided from the left side shall be provided at the right of the stepwell to assist passengers in climbing and descending steps.

2.7.24.9 Stanchion and cross rail between wheelchair position and first row of seats shall be provided.

2.7.24.10 Yellow slip-resistant entrance stanchions and lift barrier stanchions shall be provided. A padded stanchion shall be provided at the rear/front of the wheelchair lift in order to prevent passengers from striking the lift. A heavily padded panel shall be provided between the stanchion and the wall, securely mounted in at least four (4) points. The panel shall be high enough to prevent passengers from striking any part of the lift and strong enough to prevent passengers from serious impact. The lift stanchion shall include a plexiglass lift barrier mounted in front of the lift and behind the last seat on the curb side of the vehicle. Vehicles 22' in length and over, shall be provided with a powder coated bright yellow overhead grab rail which shall be full length of the bus from the rear to the entrance area located on streetside of the aisle, in compliance with ADA and MassDOT regulations.

2.7.25 Body Dimensions:

Body dimensions of the vehicles shall be as stated below:

Types E & E2:	Ground to first step	11” maximum
	Width overall	94” maximum (ex. mirrors)
	Interior width at seat rail	77” minimum
	Interior width at window	72” minimum
	Height overall	114” maximum (ex. hatches)
	Interior height	74” minimum
	Wheelbase	159” maximum
Types C & D:	Ground to first step	11” maximum
	Width overall	90” minimum/ 102” maximum (ex. mirrors)
	Interior width at seat rail	86” minimum
	Height overall	117” maximum
	Interior height	74” minimum
	Wheelbase	158” minimum/176” maximum

2.7.26 Body Water Leak Test:

Each vehicle body including the under carriage shall be completely water tested to validate adequacy of all caulking, body sealing, door and window gaskets. MassDOT inspector may attend the water test conducted on each vehicle and sign-off the test result. A water test booth shall be utilized to completely drench each vehicle with water from top, front, back, both sides, and the under frame area. Spray nozzles shall be arranged to ensure water spray on the roof, all doors, all windows, rear wall, windshield and in the wheel well areas under the frame. Water shall be sprayed at a minimum rate of thirty (30) GPM. Each vehicle shall be exposed to this rate of water spray for a continuous period of twenty (20) minutes. All leaks found as a result of this test shall be repaired and the vehicle shall be retested until no water leaks exist. At the time of the buy-off inspection the body manufacturer shall provide a legibly signed certificate stating that each vehicle has been water tested as specified and found to be free of water leaks.

2.8 Seats - Seating:

2.8.1 Operator's Seat:

2.8.1.1 Operator’s seat shall be installed on the OEM pedestal, without compromising the performance of the operator side air bag. The seat installation shall comply with the chassis manufacturer’s guidelines. All vehicles shall be equipped with a minimum six-way power seat. Seat warranty should be equivalent to vehicle’s manufacturer’s warranty. The driver’s seat shall be upholstered in Holdsworth or approved equal black cloth. ~~in the most durable vinyl upholstery available.~~ The color of the driver’s seat shall be complementary to that of the passenger seating and the interior of the vehicle.

2.8.1.2 Operator's seat shall be recliner with headrest, and equipped with shoulder harness and lap belt. The seat shall also have an adjustable lumbar support for driving comfort, and ~~continuous~~ adjustable folding type armrest on right side. Operator’s seat on all vehicles shall be made by Recaro ~~American Seating Company, C.E. White Company, Freedman Seating Company,~~ or approved equal, and shall be compatible to chassis OEM pedestal. ~~Upholstery for the operator’s seat~~

2.8.1.3 Minimum clear distance between steering wheel and the backrest of operator's seat shall be 15 inches. Operator's seat shall have a total fore and aft adjustment of not less than five inches. Operator's seat anchorage shall comply with acceptable installation procedures and with FMVSS 207.

2.8.2 Passenger Seating:

2.8.2.1 Seats shall be covered with a level 4 grey vinyl material and have bright YELLOW piping. Detailed information and photographs of seats to be provided shall be included in the bidder’s proposal. The bidders shall be prepared to make available sample seats for inspection during the bid review process.

2.8.2.2 Seats shall be a minimum of 17½” wide and 17” deep. The back of the seat shall be a minimum of 18” high and a maximum of 22” high (measured from the top of the seat cushion). A minimum of 27” of hip-to-knee room shall be provided. A minimum of 9” of “knee room” shall be provided from the edge of one seat to the back of the seat ahead or to any forward obstruction. Seats shall be 17½” from the floor to the top of the cushion. Track seating is not acceptable. Seats must be bolted through the floor.

2.8.2.3 Aisles in all vehicle types shall be a minimum of 16” including armrest. 12” is permissible in wheel chair area, and 15” is permissible to forward facing fold away seats.

2.8.2.4 Seats shall be provided with an independent spring suspension system. All back cushions shall be contoured and pleated so as to provide full lumbar support. Seat upholstery shall be 36 oz. minimum, expanded vinyl with yellow trim. All seat cushions, including flip seats, shall have identical upholstery. Seat covering and padding material shall be fire resistant, shall not support combustion, and shall meet applicable federal and state regulations on fire retardancy and toxicity.

2.8.2.5 All metal surfaces shall be chemically cleaned, iron-phosphated, electrostatically painted, and backed to provide a rugged, long-lasting, rust resistant surface. All hazardous surfaces shall be padded or protected by high-impact thermoplastic enclosures. Seats shall be anchored through the floor with 2 3/8” diameter grade 5 bolts or by a method providing equal strength. Armrests shall be provided on the aisle seats.

2.8.2.6 The inboard ambulatory seating position shall have a lap belt with an automatic locking retractor mechanism mounted under the seat bottom (fixed retractor). The outboard seating position shall have a shoulder/lap belt combination with a switchable lockable retractor. The shoulder belt portion of this belt shall be provided with a vertical slide. The latch plate (male portion) of the belts shall be provided in a length that will ensure compliance with the requirements of the ADA. The buckle (female) portion of the belts shall provide minimum belt length of not more than 1" from the bite of the seat (point where seat back and seat bottom meet). All seat belt configurations must be able to accommodate the proper securement for a child safety restraint in accordance with the Child Passenger Safety Law in Massachusetts and FMVSS 225. The securement of the child restraint must be accommodated without the use of adaptive devices. Each vehicle shall be equipped with three (3) positions that contain latch securement hooks for child securement. The positions shall comply with FMVSS 225. Seats shall be installed with seatbelt under seat retractors.

2.8.2.7 A minimum of four (4) 15" seat belt extensions shall be provided. All extensions shall accommodate both the ambulatory seat belt system and mobility aid seat belt system. If a common extension for both applications outlined here cannot be provided then provide four (4) extension belts for the ambulatory seat belt system and four (4) extension belts for the mobility aid system per bus.

2.9 Mobility Device - Passenger Securement System: The system shall be composed of a complete belt-track and shoulder restraint system. Systems shall incorporate continuous floor track in the area of the wheelchair securement. A shoulder/lap belt combination with an emergency locking retractor shall be provided for each wheelchair securement location. The shoulder belt portion of each belt shall be provided with a belt length to accommodate passengers in accordance with ADA standards. It shall also have a vertical adjustable slide. The passenger securement system shall meet the following requirements:

2.9.1 Floor/wall track shall be flush-mounted with the finished floor. No wells, holes, or gaps in transition from floor to track shall be permitted.

2.9.2 The anchoring system shall have passed 30 mph/20g impact test.

2.9.3 A seven-point wheelchair system, which meets ADA and SAE J249, shall be provided for each mobility aid position.

2.9.4 Automatic self-tensioning retractors and "J"/"S" hooks for attachment to the mobility aid shall be provided. Retractors shall have the ability to rotate 360º. Retractors shall carry a warranty for not less than two (2) years.

2.9.5 Button track fittings shall be a four-stud design for optimum strength and ease of use.

2.9.6 "L" Track shall have a corrosion resistance rating of "A" and be installed with end caps and track cover.

2.9.7 The same manufacturer shall supply the occupant restraint system as the mobility securements.

2.9.8 A lap/shoulder belt combination with retractable height adjuster shall be provided at each location.

2.9.9 Each wheelchair position shall have an extra floor pocket to accommodate a tri-wheeler or scooter-type device.

2.9.10 Four webbing loops per wheelchair position shall be provided.

2.9.11 One wall mounted "L" track for securement hardware shall be supplied per location.

2.9.12 L track shall be installed, lengthwise, above the windows at all wheelchair securement positions. This will allow a full range of positioning for all wheelchair types. Track shall be secured to a structural member and no fasteners are to be visible from outside the vehicle.

2.9.13 QRT - Retractable - Deluxe of Max retractor or approved equal – with "L" track for tie downs.

2.9.14 One wall-mounted storage pouch for webbing and tri-wheeler securement devices shall be provided. An unobstructed floor space at 30 inches and 50 inches long shall be provided for each wheelchair position. The tracks shall be continuous lengthwise in the vehicle. Each wheelchair position shall consist of four (4) lengths of "L" track; each 50 inches in length. Two (2) lengths shall be installed on 30" centers and two (2) lengths are to be installed on 15" centers. (The lengths installed on 15" centers are to be centered inside the outer lengths of track.) Example: A two (2) wheelchair configuration shall have an uninterrupted track length of 100 inches.

2.9.15 A tri-wheeler securement kit shall be provided for each wheelchair securement location.

2.9.16 The Contractor shall arrange for a representative of the securement system manufacturer to inspect, approve and certify the system installation in the vehicle. The representative shall further certify that the L-track and the fasteners used for installation are all OEM components. The certificate shall be provided to MassDOT at the time of pilot vehicle buy-off inspection. Installation of the A/C system on all production vehicles shall strictly adhere to such certified installation procedure.

2.10 Lift:

2.10.1 The vehicle shall be equipped with an electro-hydraulic powered, fully automatic wheelchair lift that conforms to FMVSS 403 and 404 and the following specifications. The lift shall be mounted on the curbside of the vehicle, accessible via an access door(s). MassDOT sub-recipient shall have the choice to have wheelchair lift installed in front or behind the rear axle. Wheelchair lift cycle counter shall be provided.

2.10.2 The lift shall have a self-cleaning, see-through, non-skid platform which shall be electrically folded and unfolded. The mechanism used to fold and unfold the platform shall be able to be quickly removed in the event of a power failure so that the platform can be operated manually. The useable clear platform width (including the area between both handrails) shall be 34" minimum and the platform length shall be 54" minimum. The outer barrier shall be interlocked and meet all of the requirements set forth in FMVSS 403. The outer barrier shall be hydraulically or spring activated and must be in the deployed (vertical) position prior to any upward platform movement from the ground level loading position.

2.10.3 The lift components, including the platform, shall be easily disassembled to facilitate repairs and replacement of parts. An audible warning signal shall be activated in the vehicle in the event that the lift doors are opened and the parking brake is not engaged. All pin switch strike points shall be improved with the addition of a metal latch to insure contact/closure of the switch.

2.10.4 Lift shall be capable of being used from curb level or ground. The lift shall meet the requirements as specified in Static Load Test I, II, and III of FMVSS 403 and have a rated capacity of 800 pounds relative to the floor to ground distance on the vehicle in which it was installed. The lift platform shall be capable of being raised or lowered with a load in no more than 24 seconds. All power units, operating joint linkages, and mounting points to the body shall be certified by the manufacturer as being adequate for the load. The operations of the unit shall provide a smooth, jerk-free ride in both the up and down directions.

2.10.5 Power unit shall be provided with a master cut-off switch. Power unit shall be 12V electro-hydraulic operated. Power unit shall be readily accessible for service. In the event of a power failure, the lift platform shall be able to be manually raised and lowered with or without passengers. System control valve shall be solenoid controlled and shall be externally mounted for easy maintenance.

2.10.6 A secure, collapsible guardrail shall be provided on the left and right sides of the lift platform. The rails shall be approximately arm level for use by an individual using a wheelchair, yet tall enough to be easily grasped by a person standing on the platform.

2.10.7 Gravity down shall also be controllable by the use of a manual hand valve in the event of electric power loss. All sliding surfaces and load bearing pivot points shall be free of exposed grease, and constructed with replaceable bearings.

2.10.8 The platform shall fold into the door area for storing while not in use. The threshold warning area as specified by FMVSS 403 shall be met by installing the lift as appropriate to achieve the 18” depth requirement for the threshold area. Activation of the threshold area shall be as required by FMVSS 403. Activation shall occur anywhere on the rectangular horizontal area in accordance with the test procedures specified in FMVSS 403. In addition to the audible and visual warnings required by the standard, lift operation shall stop if activation of the threshold warning device occurs anywhere during the range of passenger operations. The lift shall be adequately restrained in the stored position to prevent the lift from coming adrift while the vehicle is in motion. The lift device in the stored position shall not rattle.

2.10.9 The lift controls shall be completely weatherproof and labeled as to function. Controls shall be attached to an umbilical cord to permit operation of the lift from inside the vehicle or at the lift’s outer limit after boarding a passenger. This cord shall be installed so it can be protected from getting caught in the door(s) or in other moving parts. A hang-up box or hook shall be provided on the lift door.

2.10.10 A strip of yellow 2” reflective tape shall be added to the outer edge of the lift platform side barrier and shall run the full length of the side barrier.

2.10.11 The lift controls shall have InterMotive Products manufactured ‘Intelligent Lift Interlock System (ILIS)’, InPower model ITM 116**,** or approved equal interlock system that shall comply with ADA mandated requirements. The system shall use solid state microprocessor controller with self diagnostics and “Plug & Play” type wiring connections to connect with vehicle chassis. The system shall be provided with a dash mounted LED subsystem status display panel. The system shall ensure that the vehicle transmission cannot shift out of Park until the lift door is fully closed and the park brake is released; and that the lift cannot be deployed unless the interlock system is engaged. The system shall be offered for MassDOT’s review with the “Request for Change” documents.

2.10.12 The Contractor shall arrange for a representative of the lift manufacturer to inspect, approve and certify the lift installation in the vehicle. The certificate shall be provided to MassDOT at the time of pilot vehicle buy-off inspection. Installation of the lift on all production vehicles shall strictly adhere to such certified installation procedure. A copy of the certificate shall be attached to each vehicle lift.

2.11 Safety Equipment:

Following safety equipment shall be provided and secured in front portion of the vehicle in proximity of the operator. Equipment shall not pose hazard to passengers entering or exiting the vehicle. MassDOT shall select the exact locations for installation of the safety items, during prototype inspection.

2.11.1 Fifteen-unit first aid kit with mounting bracket meeting FMCSA requirements to include the following.

- One (1) AN-101: 1” x 3” fabric bandages, 16/box
- Two (2) AN-146: 1” x 3” adhesive plastic bandages, 16/box
- One (1) AN-205: 32 sq. in. absorbent gauze compress, 1/box
- One (1) AN-266: 3” compress bandage, off center, 2/box
- One (1) AN-5071: Triangular sling bandage, 1/box
- One (1) AN-206: 3” x 3” gauze dressing pads, 4/box
- One (1) AN-337: Antiseptic cleansing wipes (sting free), 10/box

- One (1) Scissors
- One (1) AN-5111: ½” x 2.5 yard adhesive tape, 2/box
- One (1) AN-51112: Exam-quality gloves, 2 pr./box
- One (1) AN-404: Burn relief packs, 6/box
- One (1) B-503: 4” x 5” instant cold compress, 1/box
- One (1) B-717: Two sterile eye pads, 1 oz. eye wash, ½”x 5 yds. first aid tape
- One (1) BK-009: AMA First Aid Guide Booklet

2.11.2 One, H. & S. Manufacturing Inc., Stock No. BF-129, American Safety & Fist Aid, Body Fluid Disposal Kit #2701 or approved equal, “Bodily Fluid Disposal Kit”.

2.11.3 One box of large disposable surgical gloves.

2.11.4 One CPR mouth barrier (latex free).

2.11.5 One box of disposable face masks.

2.11.6 One flame retardant woolen blanket.

2.11.7 One seat belt cutter with retractable blade.

2.11.8 A 5 lb. fire extinguisher, with a 10 ABC rating and visible gauge with mounting bracket.

2.11.5 ICC triangular flare kit with mounting bracket.

2.11.6 Emergency electrical fuse kit consisting of all spare fuses supplied by chassis OEM and one fuse of each type and size used by the body manufacturer.

2.11.7 Mobile Video Recording System

All vehicles shall be equipped with video technology, including interior infrared lighting capability, and software to identify high-risk driving habits. There shall be an REI or approved equal 2 camera/4DVR system on all vehicles. The cameras shall be placed on the windshield for both front and rear view, unless specified otherwise by the sub-recipient. A small sized video recorder would be mounted behind the rearview mirror or placed in an obstruction-free location. Video event files would be automatically downloaded daily to a computer via USB or SD card and have a wireless connection. A decal, written in both English and Spanish, shall be provided in a clearly visible location that informs the customers there is a video recording device on board the vehicle

2.12 Undercoating:

All steel material on the frame, fenders, underbody, cab, chassis, wheel wells, stepwell, and body except drive shaft, catalytic converter, engine, transmission, differential, heat shields, power steering, and exhaust system, shall be undercoated with TECTYL 127G Silver, TECTYL 121BN, BASFDegacoat 300, Pure Asphalt 76-M, Z-guard 20060-B or approved equal, as required to meet chassis OEM “Rust through” warranty. Undercoating shall be composed of a nonvolatile base, grit and abrasive free material, dispersed in a petroleum solvent, which shall provide a homogenous formulation. Undercoating shall be applied to a uniform thickness with no bare spots. Over spray shall be removed. Fuel tank shall not be undercoated. Undercoating shall be applied in conformance with the recommended procedure of the chassis manufacturer and shall not void in any way the chassis OEM warranty.

2.13 Paint:

Vehicle exterior shall be thoroughly cleaned and painted with one (1) coat of suitable rust resistant primer, and finished with minimum 2 mil coat of DuPont Imron 5000, 3.5 VOC; PPG. Concept Acrylic Urethane; or approved equal fleet white, to match with OEM chassis “White” paint. The exterior 2 mil coat of white finish shall not be required if the exterior skin is pre-finished with an approved process rendering an equivalent “White” finish. However, any fresh surface and edges of such pre-finished surface exposed as a result of the manufacturing process shall be primed and painted for corrosion protection and aesthetics. Prior to the manufacture of the vehicles the Contractor shall obtain approval from MassDOT on the paint pigment used and on the color of the fiberglass. This paint specification applies to bodies painted by the body manufacturer or any exterior body surfaces painted by a supplier to the body manufacturer i.e. 'Pre-finished' parts.

2.13.1 An exterior stripe approximately nine (9) inches wide shall be located approximately two (2) inches below the side windows and wrap around the vehicle. The two (2) color stripe (not including the body color) shall be included in the price of each vehicle. The colors and design scheme shall be selected by each MassDOT sub-recipient. If a MassDOT sub-recipient chooses not to add a paint scheme to the vehicle, lettering of equal value shall be provided. The stripe shall be painted or applied as a cast vinyl decal.

2.13.2 All wheels, including spare wheel, shall be chassis OEM powder coated, and painted white per this section.

2.14 Signs and Decals:

The Contractor shall provide all decals mandated by law. These shall include, but not be limited to, emergency exits, standee line, ADA priority seating, etc. Decals shall be generated on a 2 mil thick, high performance premium grade, flexible vinyl film. Material used shall be Avery A8 opaque, 3M 180C series film, or approved equal.

2.14.1 All emergency exits shall be identified with appropriate permanent labeling including operating instructions for evacuation, lock operation and the direction of operation of the handle or control.
2.14.2 Operating instructions for the lift shall be posted on the inside of the lift door.
2.14.3 Decal containing clear and precise instructions for operation of the mobility device four point securement system and seat and shoulder belts, shall be posted immediately adjacent to each mobility device position.
2.14.4 A sign shall be placed on the front wall overhead in full view of operator and passenger seating area, stating "All wheelchair securement belts must be placed on wheelchair and all passenger lap belts must be utilized by passengers prior to vehicle movement."
2.14.5 The necessary roof clearance needed for vehicle shall be posted as a decal in operator's compartment. The roof clearance shall include the "roof hatch in venting position" height.
2.14.6 A "CAUTION HOT" decal shall be placed on the rear auxiliary heater(s).
2.14.7 A" No Smoking" decal shall be place on the interior sides, rear and front wall of the vehicle.
2.14.8 A yellow and black safety stripping decal shall be placed on lower edge of auxiliary A/C evaporator to warn of low clearance.
2.14.9 A decal in red letters on white background reading: "IN LINE CUT-OFF VALVES LOCATED HERE" shall be supplied and applied on the outside left wall of the vehicle, close to and pointing at the location of the heater hoses cut-off valves.
2.14.10 Decals of international symbol of accessibility shall be placed on exterior sides and the rear wall of the vehicle. The symbol shall be a minimum of 6" X 6" or as required by ADA.
2.14.11 Decal in red letters on white background reading "FIRE EXTINGUISHER" shall be placed to indicate the location of fire extinguisher.
2.14.12 "WATCH YOUR STEP" warning letters shall appear on each riser.
2.14.13 A decal in two inch high black letters stating "BATTERY COMPARTMENT" shall be placed outside the battery compartment.

2.14.14 A decal shall be applied to indicate the location of the lift breaker.
2.14.15 A decal-applied or plate-riveted sign inside the cab shall state, the “Original Vehicle Manufacturer’s Passenger Design Capacity is ____ passengers, including the operator.”
2.14.16 A decal-applied or plate-riveted sign inside the cab shall state that the vehicle complies with all applicable FMVSS regulations.
2.14.17 The Contractor shall supply and apply all decals, logos, and numbers to the vehicle, prior to MassDOT’ssub-recipient’s acceptance of the vehicle. The quality of decals shall be such that the colors shall not fade during the design life of the vehicle. Decal placement shall be determined in consultation with, and shall require approval of each sub-recipient.
2.14.18 All decals shall be self-adhesive type and shall be applied in accordance with the manufacturer’s instructions. The edges and corners shall be sealed to preclude any possibility of peeling. The interior walls of the vehicles shall be smooth for proper application and permanent retention of the decals. In case the walls are not smooth, a Plexiglas board or a Stainless Steel sheet screwed on the wall shall be used for application of the decals. No decal shall be applied on a padded vinyl surface.
2.14.19 Hand written signs shall not be acceptable.

2.15 Workmanship:

Vehicle manufacturer shall employ adequately qualified and skilled workers, and shall follow the industry approved procedures and practices, for this project. Poor workmanship not meeting the industry standards shall cause the vehicle to be rejected during inspection. The types and sizes of the fasteners and hardware used in the body assembly or for installation of the aftermarket items shall meet with industry standards.

2.15.1 Components with identical functions shall be interchangeable within the vehicle.
2.15.2 All welds shall be properly designed, utilizing applicable AWS specifications and shall perform satisfactorily in the service environment for which they are specified.
2.15.3 The types and sizes of the fasteners and hardware used in the body assembly or for installation of the aftermarket items shall meet with industry standards, and at a minimum shall meet the recommendation of the manufacturers of the aftermarket items, utilizing any special tools specified. All fasteners shall be installed to insure no sharp edges are exposed. All hardware used for the construction of these vehicles shall be reviewed during the pre-production meeting.
2.15.4 Machined surfaces, sheet metal joints, and coach interior joints shall be designed and manufactured for proper fit and smooth, aesthetic finish. Wall surface joints in the cab and coach areas shall be finished with trim. The edges of the trim shall be finished smooth and free from sharp corners.
2.15.5 Flooring material seams shall be smooth and continuous, without any area of the floor looking ‘raised’ or ‘depressed’. The floor edges shall be sealed with glue to preclude any possibility of peeling. Floor joints around the wheel-wells shall be covered with trim.
2.15.6 Surface joints in the cab interior area shall be finished with trim. The edges of the trim shall be finished smooth and free from sharp corners.
2.15.7 All the doors shall be constructed to insure trouble free operation during the life of the vehicle. All doors and windows shall be completely sealed from water and moisture using bulb type gaskets. The gasket shall be glued to the grooves. If the door frames are made of hollow tubular sections then they shall be sealed and capped. Any interior insulation used shall not allow wicking of water. The body opening around the door shall provide adequate drainage to direct water away from the doors.

2.15.8 All fasteners shall be installed to insure no sharp edges are exposed. Fasteners used to install the aftermarket items shall comply with the manufacturer's instructions.

2.15.9 Body wiring shall be of compatible quality with that of the chassis wiring. The connections between the two wiring shall be made using Signal-Stat, ETC Molex, AMP, Packard WeatherBar, or approved equal, receptacles, sockets, connectors, etc. Adequate wire lengths shall be provided for two re-terminations.

2.15.10 Wiring for the lights shall be grounded through wiring harness. Body grounding shall not be acceptable.

2.15.11 Failure to use closed cycle crimping tool for connecting the terminals shall cause rejection of the wiring.

2.15.12 The manufacturing workmanship shall match and ensure the vehicle's designed operating life of five (5) years for Types E and E2 and seven (7) years for types C and D.

3.0 MANUFACTURER'S IN-PLANT QUALITY ASSURANCE PROVISIONS:

The manufacturer shall establish and maintain an in-plant quality assurance department to ensure that the vehicles manufactured for this contract fully comply with these specifications. The Quality Assurance department shall be a specifically defined organization and shall be directly responsible to the Contractor's top management. At a minimum, the Quality Assurance department shall be responsible for the following functions.

3.1 The quality assurance organization shall exercise quality control over all phases of production from initiation of design through manufacture and preparation for delivery. The organization shall also control the quality of supplied articles. The Quality Assurance department shall have the authority and responsibility for reliability, quality control, inspection planning, establishment of the quality control systems, and acceptance/rejection of materials and manufactured articles in the production of these vehicles.

3.2 The quality assurance organization shall include the following minimum functions.

3.2.1 The organization shall verify inspection operation instructions to ascertain that the manufactured product meets all prescribed requirements.

3.2.2 The organization shall maintain and use records and data essential to the effective operation of its program. These records and data shall be available for review by the Resident Inspector(s). Inspection and test records for this contract shall be available for a minimum of three (3) years after inspection and tests are completed.

3.2.3 The organization shall detect and promptly assure correction of any deficiencies. There shall be full documentation of any deficiencies detected in the manufacturing process. Corrective actions taken to remedy these deficiencies shall also be fully documented.

3.3 The following standards and facilities shall be basic in the quality assurance process.

3.3.1 The manufacturer shall maintain drawings and documentation that essentially describe a quality vehicle that meets all of the options and special requirements of this procurement. The quality assurance organization shall verify that each vehicle is manufactured in accordance with these controlled drawings and documentation.

3.3.2 The manufacturer shall provide and maintain the necessary gauges and other measuring and testing devices for use by the quality assurance organization to verify that the vehicles conform to all specification requirements. These devices shall be calibrated at established periods against certified measurement standards that have known valid relationships to national standards.

3.3.3 When production jigs, fixtures, tooling masters, templates, patterns, and other devices are used as media of inspection, they shall be proved for accuracy at formally established intervals and adjusted, replaced, or repaired as required to maintain quality.

3.3.4 The manufacturer's gauges and other measuring and testing devices shall be made available for use by the Resident Inspector to verify that the vehicles conform to all specification requirements. If necessary, the manufacturer's personnel shall be made to operate the devices and to verify their condition and accuracy.

3.4 The manufacturer shall maintain quality control of all manufacturing material purchases.

3.4.1 The manufacturer shall require that each supplier maintains a quality control program for the services and supplies that it provides. The manufacturer's quality assurance organization shall inspect and test materials provided by suppliers for conformance to specification requirements. Materials that have been inspected, tested, and approved shall be identified acceptable to the point of use in the manufacturing or assembly processes. Controls shall be established to prevent inadvertent use of nonconforming materials and shall be documented as such.

3.4.2 The manufacturer shall verify that all applicable specification requirements are properly included or referenced in purchase orders of articles to be used on all vehicles manufactured under this contract.

3.5 The manufacturer shall ensure that all basic production operations, as well as all other processing and fabricating, are performed under controlled conditions. Establishment of these controlled conditions shall be based on the documented work instructions, adequate production equipment, and special working environments if necessary.

3.5.1 A documentation system for final inspection and tests of completed vehicle shall be provided by the quality assurance organization. It shall substantiate the overall quality of each completed vehicle.

3.5.2 The quality assurance organization shall monitor the manufacturer's system for controlling nonconforming materials. The system shall include the procedures for identification, segregation, and disposition of the same.

3.5.3 The quality assurance organization shall use statistical analysis, tests, and other quality control procedures when appropriate in the quality assurance processes.

3.5.4 A system shall be maintained by the quality assurance organization for identifying the inspection status of components and completed vehicles. Identification may include cards, tags, or other normal devices which shall provide vehicle and/or component documentation.

3.6 The quality assurance organization shall establish, maintain and periodically audit a fully documented inspection system. The system shall prescribe inspection and tests of materials, work in progress, and completed articles.

3.6.1 Inspection stations shall be established at the best locations for the work content and the characteristics to be inspected. Station shall provide the facilities and equipment to inspect structural, electrical, hydraulic, and other components and assemblies for compliance with the design requirements. Stations shall also be at the best locations to inspect or test characteristics before they are concealed by subsequent fabrication or assembly operations. These locations shall minimally include underbody structure completion, body-framing completion, body prior to paint preparation, water test, coach prior to final paint touch up, coach prior to road test, vehicle after road test and after final test completion.

3.6.2 Adequate number of trained inspectors shall be used to ensure that all materials, components, and assemblies are inspected for conformance with the qualified vehicle design.

3.6.3 Rework or rejected identifications shall be attached to inspected articles. Articles that have been reworked to specified drawing configurations shall not require special identification. Articles rejected as unsuitable shall be plainly marked and controlled to prevent installation on the vehicles. Unusable articles shall be isolated and then scrapped.

3.6.4 Inspection personnel shall record the discrepancies noted by manufacturer or Resident Inspector during assembly. This document shall accompany the vehicle from start through final assembly. Actions shall be taken to correct discrepancies or deficiencies in the manufacturing process, or other conditions that cause articles to be in nonconformity with these specifications. The inspection personnel shall verify the corrective actions and mark the discrepancy record. If discrepancies cannot be corrected by replacing the nonconforming materials, MassDOT shall approve the modification, repair, or method of correction to the extent the contract specifications are affected.

3.6.5 The quality assurance organization shall establish and maintain a quality control audit program. Records of this program shall be subject to review by MassDOT.

4.0 PILOT VEHICLES:

4.1 Within forty-five (45) days of the receipt of the first chassis, the manufacturer shall manufacture and complete one vehicle for each type executed under this RRR as a pilot vehicle and offer for MassDOT to buy off the same at their facility. The vehicle shall be complete in all respect including the installation of all components and all aftermarket items such as the seats, lift, the A/C system, fare box, etc., and it shall be properly painted. MassDOT shall select the floor plan for the pilot at the pre-production meeting.

4.2 In order to assess compliance with these specifications, a configuration audit of the pilot vehicle shall be conducted by the Contractor and witnessed by MassDOT representatives. The configuration audit is developed from the performance/dimensional requirements of these specifications. MassDOT at its discretion may permit certifications to be submitted in lieu of physical verification and/or performance based physical testing. The decision to accept certifications or to perform actual tests shall be at the sole discretion of MassDOT. MassDOT may direct the Contractor to perform any and all dimensional performance tests which are necessary and proper to ensure the vehicle meets required standards. These tests may include but shall not be limited to the following:

- Complete electrical system audit
- All dimensional requirements
- Individual axle weight tests
- Seating capacity
- HVAC pull down/steady state /heat
- Water test
- Function test of systems/subsystems and components
- Sound/noise level tests (interior /exterior)
- Vehicle top speed
- Speedometer & Dashboard equipment
- Brake stop distance tests

The brake stop distance test shall be carried out on the pilot as well as on all regular production vehicles. From a steady speed of 20 miles per hour the vehicle shall come to stop within twenty two and a half (22.5) feet upon application of the service brakes, and within sixty six (66) feet upon application of the emergency brakes. The Contractor or the body manufacturer shall provide a Vericom 3000 Brake Test Meter to perform this test.

4.3 MassDOT shall inspect the pilot vehicle for compliance with the specifications and will ask for changes, modifications, or repairs, to bring the same within compliance. MassDOT shall also inspect the vehicle for all quality and workmanship aspects prior to buy-off. The body manufacturer shall satisfactorily correct all such items to enable MassDOT to buy-off the pilot.

4.4 After successful buy-off inspection the vehicle shall be delivered to the Contractor’s facility in the northeastern United States. The Contractor shall prepare the vehicle and complete vehicle inspection and registration procedures, and then deliver the pilot to the designated sub-recipient.

4.5 Upon satisfactory delivery of the pilot with a post-delivery Buy-America compliance certificate, sub-recipient shall visually evaluate the pilot and within two weeks provide its feed back to MassDOT who will then notify the Contractor. All problems detected on the pilot shall be corrected on the pilot and on all regular production vehicles. All regular production vehicles shall be built the same as the pilot bought off by MassDOT and the designated sub-recipient.

4.6 The manufacturing of the regular production vehicles shall not start until MassDOT provides the Contractor its feedback on the pilot unit. No production work until written Notice to Proceed.

4.7 A representative of the Contractor shall accompany the MassDOT inspector for the buy-off inspection of the pilot unit.

5.0 INSPECTION AND TESTING:

5.1 MassDOT, the Contractor, and the manufacturer shall meet in a pre-production meeting at a location selected by MassDOT, after the NTP is issued.

5.2 MassDOT reserves the right to appoint a resident inspector at any time during the manufacture of these vehicles, to visit the body builder to review the progress on the vehicles, and/or to conduct a detailed vehicle production inspection. The Contractor and/or body manufacturer shall make all production and Q.A. documents pertaining to the vehicles manufactured for this contract, available to such resident inspector for review.

5.3 A properly heated and air conditioned office place with an outside telephone line and free access to a scanner, computer and internet access shall be provided to the resident inspector at the body manufacturer’s facility.

5.4 Full documented tests shall be conducted on each production vehicle following manufacture to determine its acceptance to MassDOT. These tests shall include pre-delivery inspections and testing by the Contractor and/or manufacturer, and inspections and testing by MassDOT after the vehicles have been delivered.

5.5 Pre-delivery Tests:
The manufacturer shall conduct acceptance tests at its plant on each vehicle following completion of manufacture and before delivery to MassDOT. These pre-delivery tests shall include visual and measured inspections, as well as testing the total vehicle. The tests shall be conducted and the results shall be documented by the manufacturer. Additional tests may be conducted at the manufacturer's discretion to ensure that the completed vehicles have attained the desired quality and have met the

requirements of these specifications. This additional testing shall be recorded on appropriate test forms provided by the manufacturer. At a minimum, the following dimensional and performance tests shall be conducted by the manufacturer and witnessed by MassDOT.

- All dimensional requirements
- Seating capacity
- Function test of systems/subsystems and components
- Vehicle top speed
- Brake stop distance tests
- Speedometer
- Water test.

The pre-delivery tests shall be scheduled and conducted with sufficient notice to MassDOT. Resident inspector may witness the tests accept or reject the test results. The results of pre-delivery tests, and any other tests, shall be filed with the assembly inspection records for each vehicle. The vehicle manufacturer’s facility shall be equipped with a pit or a lift for the inspection of the underfloor equipment by the Resident Inspector. A lift and location shall be made available to MassDOT’s Resident Inspector to conduct an underbody inspection immediately after the conclusion of the road test. The manufacturer shall provide a hoist, scaffold, or elevated platform to easily and safely inspect vehicle roofs.

5.6 MassDOT shall conduct a buy-off inspection on each vehicle before shipment from manufacturer’s facility, for compliance with these specifications. Prior to offering a vehicle for the buy-off inspection to MassDOT, the Contractor and/or manufacturer shall ensure that the vehicle shall be complete with all components such as the lift, all seats, A/C system installed, a thorough paint job done, and all ‘after market’ items specified properly installed. The buy-off inspection shall include a visual inspection as well as total vehicle operation and a road test for each vehicle. No vehicle shall be shipped or delivered prior to buy-off inspection. Delivery of each vehicle shall require written authorization of a MassDOT designated Resident Inspector. Authorization forms for the release of each vehicle for delivery shall be provided by the Contractor. An executed copy of the authorization shall accompany the delivery of each vehicle. The Contractor shall notify MassDOT in writing thirty (30) days in advance of date and scheduled time of such inspection.

5.6.1 Inspection - Visual and Measured

Visual and measured inspections shall be conducted with the vehicle in a static condition. The purpose of the inspection testing is to verify overall dimensional and weight requirements, to verify that required components are included and are ready for operation, and to verify that components and subsystems that are designed to operate with the vehicle in a static condition perform as designed.

5.6.2 Total Vehicle Operation and Road Test

Total vehicle operation shall be evaluated during road tests. The purpose of the road test is to observe and verify the operation of the vehicle as a system and to verify the functional operation of the subsystem that can be operated only when the vehicle is in motion. Each vehicle shall be driven for a minimum of fifteen (15) miles during the tests. Observed defects shall be recorded. The vehicle shall be retested when defects are corrected and adjustments are made. This process shall continue until defects or required adjustments are no longer required and detected. Results shall be pass/fail for these vehicle operation tests. Immediately after the road test the vehicle shall be hoisted on a lift to better identify leaks and other defects.

5.7 The Contractor shall carry out a final inspection of the vehicles upon delivery. The Contractor shall promptly rectify any defects and/or deficiencies found during this inspection. No vehicle shall be accepted before this inspection and correction of all the defects and/or deficiencies.

5.7.1 Post-Delivery Tests
The sub-recipients may conduct acceptance tests on each delivered vehicle. These tests shall be completed within fifteen (15) days after the delivery. The purpose of these tests is to identify defects that have become apparent between the time of vehicle release and delivery to MassDOT. The tests shall include visual inspection and vehicle operations. Vehicles that fail the post-delivery tests are subject to non-acceptance. MassDOT shall record details of all defects on the appropriate test forms and shall notify the Contractor of non-acceptance of each vehicle within five (5) days after completion of tests. The defects detected during these tests shall be repaired by the Contractor to bring the vehicle within specification compliance.

5.7.2 Visual Inspection
The post-delivery inspection shall be similar to the inspection at the manufacturer’s plant and shall be conducted with the vehicle in a static condition. Any visual delivery damage shall be identified and recorded during the visual inspection of each vehicle. This is inspection may be conducted by each MassDOT sub-recipient.

5.7.3 Vehicle Operation
The road tests for the vehicle operation shall be similar to those conducted at the manufacturer's plant. Operational deficiencies of each vehicle shall be identified and recorded. This inspection may be conducted by each MassDOT sub-recipient.

5.8 Failure to offer the pilot vehicle and/or regular production vehicles for a pre-scheduled inspection, shall entitle MassDOT to deduct the total out of pocket expenses incurred for such inspection(s) from the payment due the Contractor, and shall entitle the inspector to leave manufacturer’s facility.

6.0 DELIVERY:

6.1 All vehicles shall be delivered and accepted by June 30 of each vehicle purchase year by all of the sub-recipients identified by MassDOT. No vehicle shall be shipped from the factory until the buy-off inspection is completed and a release order signed by a representative of MassDOT at the manufacturer’s facility. No vehicle shall be accepted until a final inspection is conducted by the Contractor at the final delivery site.

6.2 Within fifteen (15) business days after NTP, the Contractor shall place an order for all the chassis’ and submit chassis and vehicle delivery schedules to MassDOT and MassDOT sub-recipients. Contractor shall confirm the actual vehicle delivery schedule to MassDOT within fifteen (15) business days after receipt of the first chassis. Contractor shall submit Vehicle Identification Numbers (VIN) of each chassis, the vehicle type and the sub-recipients expected to receive date for each vehicle to MassDOT as confirmation of receipt of the chassis.

6.3 The pilot shall be completely manufactured, tested and offered for ‘buy-off’ inspection within forty-five (45) calendar days from the date of receipt of the first chassis at the body manufacturer’s facility. All the regular production vehicles shall be completely manufactured (including the lift, seats, painting and all specified ‘after market’ items) and offered to MassDOT inspector for buy-off inspection, within one hundred and twenty (120) calendar days from the date MassDOT provides its feedback on the pilot vehicle to the Contractor. Contractor shall deliver each vehicle to the MassDOT sub-recipient within four (4) weeks of the successful buy-off inspection and upon final inspection by the Contractor at the final delivery site.

6.4 Failure to comply with the above delivery schedule may subject the Contractor to liquidated damages as set forth elsewhere in these specifications.

6.5 Delivery shall be determined by signed receipt of MassDOT's designated agent at the point of delivery. Such signed receipt shall not constitute acceptance of the vehicle.

6.6 Vehicle shall be delivered completely lubricated, ready to operate and with minimum half a tank of fuel and all fluids topped of.

6.7 Vehicle deliveries shall be arranged from Monday through Friday, between 8:00 AM to 3:00 PM. No deliveries shall be arranged on Saturdays, Sundays and holidays. The Contractor shall coordinate a schedule with MassDOT, for the end users to pick up the vehicles.

6.8 The Contractor's name shall not appear on any vehicle delivered to MassDOT.

6.9 The Certificates of Origin shall be provided to each sub-recipient and Massachusetts registration and title forms shall be filled out in advance of delivery of each sub-recipient. Each vehicle must have MassDOT – Rail and Transit Division, 10 Park Plaza, Suite 4160, Boston, MA 02116 (lien code C40410) listed as the first lienholder and the sub-recipient listed as the owner. The contractor(s) shall provide instructions to each sub-recipient regarding the proper procedures for registering and titling the vehicle(s).

7.0 TRAINING:

7.1 The Contractor shall present an outline of the training program to MassDOT within fifteen (15) days after Notice to Proceed.

7.2 The Contractor shall conduct training on all components of vehicles, including but not limited to chassis, body, lift, wheelchair securement, and air-conditioning system. The training shall take place at the sub-recipient's location.
7.3 Approximately, total sixty (60) participants shall require to be trained.
7.4 One training video per vehicle for the wheelchair securement system shall be provided on delivery for each sub-recipient.

8.0 TECHNICAL ASSISTANCE:

The Contractor shall state below the representatives responsible for providing technical assistance to MassDOT and MassDOT sub-recipients, as well as the location of the nearest distribution center which can furnish a complete supply of parts and components for the repair and maintenance of the vehicles to be supplied. This information shall be submitted with the bid.

Name: ____

Address: ____

Telephone: ____

E-Mail: ____

9.0 MANUALS:

The Contractor shall provide one set of the following manuals for to each delivery location and one set of Body Builder Manuals of each type. One (1) set of manuals for each vehicle type shall be delivered to each agency.

9.1 Complete Shop Repair (factory service) Manual from chassis OEM.

9.2 Complete Operation and Routine Maintenance Manual from Chassis OEM.

9.3 Body Builder supplied parts manual.

9.4 OEM Manuals for air conditioning system, auxiliary heater, lift, seats, destination signs, fare collection system, stop request sign, and any other “after market” components shall be supplied.

9.5 The manual from vehicle body builder shall contain complete wiring diagrams for the vehicles. One fold-out type diagram shall show all electrical circuits for the vehicle, inclusive of the chassis OEM wiring and body builder’s interconnections to it. This diagram shall further refer to individual circuit diagrams for lift operation and ADA interlock and rear emergency door interlock to assist the trouble shooting on any of these circuits.

9.6 All manuals shall be included in the delivery of the first vehicle at each location.

9.7 Failure to supply these manuals shall hold up processing of invoices for payment.

9.8 Two (2) complete sets of keys for each vehicle, each set on a separate key ring.

10.0 CNG Conversion Option

Each sub-recipient shall have the option to have vehicle types E, E2, C and D fuel systems converted to CNG, if the CNG conversion is available for that type of vehicle. The MassDOT sub-recipient is responsible for all additional costs and this change must be approved by MassDOT. All conversions shall be done by a Ford QVM authorized converter. EPA certificates for CNG conversion shall have the installation Contractor’s name on the certificate. Contractors providing an EPA certificate in which their name is not listed on the certificate shall not be permitted to perform the CNG conversion. The cost of the CNG conversion must be priced out in the Cost Proposal Form.

11.0 Propane Conversion Option

Each sub-recipient shall have the option to have vehicle types E, E2, C and D fuel systems converted to Propane, if the Propane conversion is available for that type of vehicle. The MassDOT sub-recipient is responsible for all additional costs and this change must be approved by MassDOT. All conversions shall be done by a Ford QVM authorized converter. EPA certificates for Propane conversion shall have the installation Contractor’s name on the certificate. Contractors providing an EPA certificate in which their name is not listed on the certificate shall not be permitted to perform the Propane conversion. The cost of the Propane conversion must be priced out in the Cost Proposal Form.

12.0 MassDOT Sub-Recipient Add-ons

Listed below is a list of MassDOT sub-recipient add-ons that may be purchased and paid for in full for the entire price, or the difference in price from the standard vehicle by the sub-recipient of each vehicle. Any changes requested by sub-recipients in addition to those listed below must be approved by MassDOT. The MassDOT sub-recipient is responsible for all additional costs. All available options listed below must be priced out on the add-on cost form.

- Automatic Vehicle Location (AVL) system;
- On board camera/digital video recorder system (DVR) from a component manufacturer other than that of the specified option, or with additional cameras or DVR channels;
- Additional logos, or modified paint scheme above and beyond the standard striping package;
- Hanover or Luminator/Twinvision/Axion or approved equal destination signs;
- Bike racks;
- 7 Inch upper rear LED amber lights which work with both the lift door and the passenger door, and have a dash mounted activation switch;
- Additional spare tires;
- Fareboxes;
- Different passenger seating than specified;
- Cruise control;
- Different wheel chair lift than specified;
- Additional exterior LED lights;
- Driver’s side step for Type E vehicles.
- Roof hatch with audible buzzer
- Side step shall be optional for Type E vehicles.
- Electric door opener in lieu of manually operated ambulatory passenger door
- Mobility securement retractors with single or dual hard zinc knobs.
- Change is location of lift from rear to front or front to rear.

RAIL & TRANSIT SERVICES DIVISION
RFR – Van & Minibuses

ATTACHMENT B
TECHNICAL SPECIFICATIONS
LOW FLOOR FOUR PASSENGER VAN WITH RAMP (Type A)

1.0 GENERAL

1.1 SCOPE

The following specifications shall apply to the purchase of a Purpose- Built (Non-Conversion), ramp accessible passenger mobility vehicle by transit providers receiving FTA funds. MassDOT reserves the right to waive minor technicalities under these specifications. All ramp-accessible Purpose-Built Non-Conversion passenger mobility vehicle purchased under this bid shall comply with FTA Buy America Guidelines. Any vehicles that are bid or delivered that do not comply with the Buy America Guidelines will not be accepted. The ramp-accessible mobility vehicle shall comply with all applicable FMVSS for this type of vehicle. In addition, the vehicle shall comply with Title 49 CFR / part 38, subpart B, dated September 6, 19911 entitled ADA Accessibility Specifications for Buses/ Vans and Systems". Written certification that the vehicles to be supplied through this bid proposal will be in compliance with FMVSS shall accompany this bid as well as the Special Provisions supplied by MassDOT. Vehicles shall be of the latest model year in standard production and of which parts and warranty service is available at one or more points in Massachusetts.

1.2 FOR BIDDERS

The bidder agrees/ if their proposal is accepted by MassDOT, to guarantee that the design, materials and workmanship throughout the vehicle will conform to the highest standards of the vehicle bid according to the standard factory warranty. To take advantage of administrative and cost savings and to ensure that all federal requirements are met, this procurement is assignable to other agencies, organizations and tribal governments funded by the FTA.

NOTE: Any brand names and specifications mentioned within this document are for reference only. Bids will only be considered when brochures/specifications are included for each Vehicle.

1.3 DEFINITIONS

(1) **ABS** - Anti-Lock Brakes
(2) **ADA** – Americans with Disabilities Act
(3) **ALC** - Automatic Level Control
(4) **ASTM -** American Society for Testing and Materials
(5) **CCA** – Cold Cranking Amps
(6) **CFR** – Code of Federal Regulations
(7) **DRL -** Day Time Running Light
(8) **FTA –** Federal Transit Administration
(9) **GVWR** – Gross Vehicle Weight Rating
(10) **GAWR -** Gross Axle Weight Rating
(11) **OEM** – Original Equipment Manufacturer

1.4 GENERAL VEHICLE SPECIFICATIONS

The estimated quantities to be purchased are 1 to 100 vehicles and unless otherwise specified, all items listed below as OEM parts or equipment means that those items were installed by the OEM. The vehicle shall come installed with OEM, factory installed cruise control.

1.5 VEHICLE SAFETY STANDARDS

All safety items and air pollution controls required by statute or regulation in effect at the time the vehicle is produced, dual sunshades, horn, prismatic type day/night mirror, parking brake with warning light, factory standard electronic AM/FM/CD stereo with clock, factory tinted glass in all windows and all other accessories or optional items which shall be shown in the proposal shall be installed in each vehicle. In addition two sets of keys shall be provided with the vehicle. The vehicle shall come equipped with Generation II air bags on the driver side. The vehicle shall also come equipped with a back-up audible warning device that is activated when the vehicle transmission is engaged in reverse and continues as the vehicle is being backed and shall be located behind the rear axle with all wires enclosed and secure from debris and water ingress protected.

2.0 GENERAL DIMENSIONS

The vehicle shall comply with the general dimensions listed below:

- INTERIOR HEIGHT (at center): Minimum 45’’
- INTERIOR LENGTH: Overall interior floor length be a minimum of 80’’
- OVERALL HEIGHT: Minimum 75”
- OVERALL LENGTH: Minimum 170’’
- OVERALL WIDTH-EXTERIOR: Maximum 80’’
- GROUND CLEARANCE: Minimum 6’’
- OVERALL WIDTH-INTERIOR: Minimum 45’’
- WHEEL BASE: Minimum of 120’’

3.0 ELECTRICAL & LIGHTING

The vehicle shall come equipped with a 12 Volt and minimum 155 amp alternator or OEM maximum and the electrical system shall be designed so that an ample electrical supply will be provided to maintain optimum air conditioning performance without battery discharge. The vehicle shall also come equipped with DRL’s if available by the OEM. A heavy duty, maintenance free 12 volt battery with 750 CCA or OEM maximum shall be installed in the vehicle. The battery shall be installed in a location that ensures easy access for replacement and maintenance by mechanics. All lighting in the vehicle shall meet all ADA requirements as stated in the Federal Register, Part IV, Department of Transportation, 49 CFR Parts 27, 37 and 38, Transportation for Individuals with Disabilities; Final Rule, published Friday, September 6, 1991. Ramp area lighting shall illuminate automatically when door is opened. Adequate interior lighting shall be installed throughout the vehicle which provides a minimum of two foot-candles at a seated level and interior lighting fixtures shall be reasonably flush with the interior walls and ceiling to prevent a hazard to passengers.

4.0 POWERTRAIN

4.1 ENGINE

The vehicle shall come equipped with a minimum of a 2.5L I-4, gasoline fueled engine with electronic fuel injection and shall include the following components: oil filter, air cleaner and heavy duty radiator capable of providing sufficient cooling capacity for the operation of all air conditioning equipment.

4.1.1 ENGINE COOLING

The engine cooling system shall be protected with permanent type antifreeze to -20 degrees Fahrenheit and shall meet or exceed the engine manufacture's specification. A permanent label listing protection level shall be supplied and riveted or screwed to the close proximity to the radiator.

4.1.2 FUEL SYSTEM

The fuel tank shall a capacity of at least twenty-four (24) gallons with 95% usable capacity. All fuel lines, and hardware shall meet all current FMVSS, including FMVSS 301, as well as all current CARB and EPA requirements. Tank shall be calibrated with the OEM dash fuel gauge.

4.1.3 ENGINE WARNING SYSTEM

The vehicle shall come equipped with an engine warning system with a light indicating oil pressure below 6 psi and a light to indicate water temperature above 210 degrees Fahrenheit.

4.1.4 ENGINE EMISSION STANDARDS AND SYSTEMS

The vehicle shall meet the latest applicable emission control standards. The system shall be CARB and EPA certified, OBDII compliant, and fully integrated into the OEM powertrain control system. No additional control module will be accepted. The system shall have the following:

(1) Closed-loop fuel control.
(2) Sequential fuel injection (SFI).
(3) Optimized ignition timing.
(4) Shall maintain original fault codes (DTCs).
(5) Diagnostics accessed through DLC using original scan tool or any generic OBD-II scanner.

4.2 AXLES AND SUSPENSION

4.2.1 FRONT AXLE

The front axle shall have a minimum GAWR of 3600 lbs

4.2.2 REAR AXLE

The rear axle shall have a minimum GAWR of 3600 lbs and shall be rear wheel or front wheel drive with a 3.45 axle ratio.

4.2.3 SUSPENSION SYSTEM

The vehicle shall come equipped with an air self-leveling suspension system. The vehicle shall also have front and rear independent suspension system adequate to support the rated weight capacity of the individual axle. The front suspension shall provide a tight turning radius and a rack and pinion steering gear. The rear suspension shall have steel leaf springs and air-assisted shocks with ALC to deliver a comfortable ride for all passengers.

4.3 TRANSMISSION

The vehicle shall come equipped with a minimum 4 speed automatic including overdrive. The transmission shall be capable of transmitting the torque and horsepower listed on the engine and have an integrated transmission oil cooler.

5.0 CHASSIS

5.1 FRAME

The frame shall have a fully boxed frame and tub supportive cross members to provide additional frame stiffness and durability. The frame shall be coated with a rust inhibitor to increase longevity of the vehicle.

5.2 BODY ASSEMBLY

The body assembly shall be a body on frame structure. A unibody construction will not be allowed) and shall be constructed of galvanized steel.

5.3 BUMPERS

The vehicle shall come equipped with front and rear bumpers whose height shall provide proper ground clearance.

5.4 SUB FLOOR

The interior floor shall be made of metal and provide a smooth surface for flooring attachment and to minimize interior noise to the passengers. Proper insulation shall be used to prevent the exhaust from making the floor so hot that it would be uncomfortable for the passengers.

5.5 CORROSION PROTECTION

All exposed floor seams shall be sealed with an industrial grade butyl sealant or equivalent that conforms to ASTM C920.The entire body and frame shall be tumbled rotated through a tank in which a high voltage electrical charge bonds a rust inhibitor necessary for rust and corrosion protection and then baked in an oven to cure.

6.0 WHEELS, TIRES AND BRAKES

6.1 BRAKES

The vehicle shall come equipped with 4 wheel disk brakes that have been tested to and comply with FMVSS 135. The brake system shall also have ABS, Stability Control, Traction Control, and Dynamic Rear Proportioning System. Provisions shall be included to prevent the operator to shift the automatic transmission out of Park unless brake pedal is depressed. In the case of an ABS or brake system malfunction a warning light shall be supplied.

6.2 WHEELS AND TIRES

Tire size shall be compatible with each vehicle and shall meet 5000 lb. GVWR minimum. The tires shall be steel-belted radial supplied with all season type tires. Wheels shall be made of steel and shall have full wheel covers. In case of the tire is punctured and tire goes flat, the vehicle shall come equipped with a tire sealant and inflator kit which shall be securely stored within the vehicle.

7.0 INTERIOR FEATURES

7.1 GENERAL FEATURES

The vehicle shall come equipped with individual gauges displaying the following information:

(1) Fuel level
(2) Water-temperature
(3) Oil pressure
(4) Battery Voltmeter
(5) Speedometer
(6) Odometer
(7) Tachometer.

The vehicle shall also have the OEM standard horn and a storage place in the center console and one in the dash.

7.2 HEATING, VENTILATION AND AIR CONDITIONING

7.2.1 HEATING

The heating system shall be an OEM, heavy duty, factory installed hot water type with sufficient capacity to warm the cabin area and clear windows of snow, ice and fog. The water lines for the heater coil shall be housed within the conduit used for the air conditioning refrigerant lines. All lines and hoses shall be sufficiently fastened, protected, and insulated to ensure against wear from friction and the elements. The lines shall be mechanically attached, with OEM clamps, to the vehicle structure at no greater than eighteen (18) inch intervals and shall be routed so as not to be exposed to wheel spray and not pass within two (2) inches of any part of the exhaust system.

7.2.2 AIR CONDITIONING

The air conditioning system shall be factory installed and shall be designed to adequately cool the interior of the vehicle with a full load of passengers. The system shall consist of one evaporator installed in the front area with integral dash outlets and with rear outlet designed to direct the air throughout the vehicle. Evaporator shall be equipped with multi-speed fan. On/Off switches and fan controls shall be within easy reach of the driver. All lines and hoses shall be sufficiently fastened, protected, and insulated to ensure against wear from friction and the elements. The lines shall be mechanically attached, with OEM clamps, to the vehicle structure at no greater than 18 inch intervals and shall be routed so as not to be exposed to wheel spray and not pass within 2 inches of any part of the exhaust system.

7.3 DOORS

The vehicle shall be equipped with standard OEM factory manually operated single, left and right-side mounted (behind left and right-side front passenger doors) doors. All doors shall maintain seal to prevent the entrance of air, water and other elements and shall have a minimum opening of 36" and a minimum door clearance height of 56". The doors shall be capable of being opened from the inside of the vehicle. All doors shall be aligned correctly and able to open and close smoothly. The doors shall come equipped with power windows and power door locks. Passenger door windows shall lower completely into door panels. Fit and finish standards shall include that the doors and interior panels shall be painted or otherwise finished with a non-glare finish in order to match the other interior panels.

7.4 INTERIOR INSULATION

All side walls and areas around the windows shall be insulated and finished with matching trim and color. The entire ceiling shall be insulated. All insulation shall consist of a polystyrene composite and shall be nontoxic. Polyurethane foam or honeycomb resin in also acceptable. Panel fastening devices shall have smooth finishes without any unprotected sharp edges.

7.5 FLOOR

The floor shall be coved with durable, skid-resistant transit type flooring. The floor covering shall be butt jointed and cemented to the floor with a waterproof adhesive in order to prevent bubbles and blisters which could create a safety hazard.

7.6 SEATING

All materials used in seats (including driver seat) shall comply with FMVSS burn resistance requirements. In addition to FMVSS seat over materials, the seats shall also comply with the FMVSS seat anchorage requirements. All seat colors shall be Gray Leatherette (Vinyl) Seating Fabric and match the vehicle color and be aesthetically pleasing. The floor plan shall comply with the current American with Disabilities Act standards such as axle width, knee room, Standard passenger capacity, all passenger seats shall be made of durable type materials that can be cleaned easily, fully padded for occupant comfort and retention. The driver seat shall have a 6 way adjustable commercial driver seat. The front passenger area shall be dedicated for a Mobility Aid Device.

7.7 SEAT BELTS

Passenger restraints (seat belts) shall be furnished for all passenger seating positions and for the driver. Restraints shall consist of lap belts and/or shoulder seat belts. Belts shall comply with FMVSS belt requirements and be of sufficient length for adults. Material and treatments shall be flame retardant to meet FMVSS 571.302 and be surface treated for efficient cleaning.

7.8 INTERIOR MIRROR AND WINDOWS

The vehicle shall come equipped with ten (10)" day/night rear view mirror and a defogger/defroster with wipers and washers on the rear window.

8.0 EXTERIOR FEATURES

8.1 GENERAL EXTERIOR FEATURES

The vehicle shall be supplied with the manufacturer’s standard white paint. If additional equipment is added that required painting, the additional equipment shall be furnished with a quality commercial exterior grade paint finish that matches the final finish of the car. All surfaces shall be free of dents, gouges, buckles, surface scale, rust, corrosion, or other surface irregularities. All materials shall be cleaned and pre-conditioned in accordance with the paint manufacturer's recommendations for the base and final paint finish. The final finish shall consist of the manufacturer’s standard colors applied with full coverage, free from sags, runs, fish-eye, orange peel, crazing, pitting or other paint defects. The vehicle shall also come equipped with roof gutters and shall be contoured into the roof design of vehicle and to shall move water away from the passenger doors. The windshield shall be tinted safety glass. The windshield washer shall be protected with winter-strength solution. There shall be front and rear wipers with an intermittent wiper system. All windows shall be factory, industry standard tinted safety glass all around, all passenger door windows capable of being opened. Aftermarket add on films is not acceptable. All windows and emergency exits shall meet the performance and operational requirements as outlined in the Federal Motor Vehicle Safety Standards and Procedures.

8.2 EXTERIOR MIRRORS:

The left and right exterior folding mirrors shall be power adjustable and manual folding

9.0 MOBILITY SYSTEM

9.1 ACCESS RAMP

Vehicle shall be equipped with a powered telescoping ramp that stores under the floor as standard equipment and equipped with an interlock system. The Ramp shall have a minimum usable width of 30" and slope meeting the requirements of ADA as set out in the Federal Register, Part IV Department of Transportation, 49 CFR Parts 27, 37 and 38, Transportation for Individuals with Disabilities; Final Rule, published Friday, September 6, 1991., 49 CFR. The ramp shall have varying deployment settings that result in a 1:6 slope (long deploy) and a 1:4.4 slope (short deploy) and the ramp surface shall be continuous, with the surface being either expanded or solid metal. If solid metal, it shall be covered with anti-skid flooring. The ramp shall have a rated capacity of 660 lbs. with a safety factor of at least three (3) based on the ultimate strength of the material. Each side of the ramp shall have protective barriers at least two (2) inches high to prevent mobility aids from rolling off of the ramp edge and shall have yellow tape on them.

9.2 MOBILITY SECUREMENT

The securement system shall be Q'Straint QRT MAX Automatic Retractor System Q-8309-L with L-Track anchorage system and J-hooks, or approved equivalent and shall come fully assembled and ready to use when the vehicle is delivered. The securement system shall also include securement pouches store wheelchair securement along with four (4) QS-7580 Webbing Loops for Securing Scooters. The securement belt system shall be of sufficient length to accommodate a motorized wheelchair. A minimum of five (5) tracks, (pads), each of sufficient length for proper attachment and positioning of the belts, shall be placed parallel to each other and perpendicular to the direction in which the wheelchair faces. All anchors shall be bolted to structural steel. All tracks shall be securely mounted to the vehicle, flush from the floor and ramps, to insure that the track will not pull away from the van floor or shift position under anticipated loads and any tracks overlapping the access path shall be recessed into the floor to prevent passengers from tripping. Any attachment hardware and anchorages shall meet or exceed the 30 mph/20 Impact Test criteria per SAE J2249, 36 CFR Part 1192 and CFR Part 38, and all applicable Federal Motor Vehicle Safety Standards, as amended.

9.3 MOBILITY OCCUPANT RESTRAINT

The mobility occupant securement system shall be Q'Straint QS-6325 or equivalent and shall come equipped with a standard manual lap/shoulder belt combo or equivalent and shall comply with SAE J2249 and ADA requirements. All L tracks shall be bolted to structural steel. The price bid shall include one (1) set of wheelchair restraints. The contractor shall supply written and video instructions on the use of the securement system. A minimum of one ADA complaint wheelchair position and 3 ambulatory positions shall be provided. This securement configuration allows for one (1) wheelchair passenger and three (3) ambulatory passengers. Wheelchair position shall be forward facing.

10.0 EMERGENCY EQUIPMENT

All emergency equipment mentioned shall be securely mounted in the vehicle rear unless otherwise specified. The vehicle shall come equipped with a first aid kit that is a 16-unit or greater and shall be provided in a durable metal or plastic box. A five (5) pound, BC type fire extinguisher shall also be provides and shall be secured by means of a mounting bracket to the rear storage container. A Tri-Alert or approved equal, three (3) folding triangular red reflectors with storage box shall be provided with 3 LED warning lights. A secured storage box shall be provided and shall be located in the rear of the vehicle. A seat belt cutter shall be provided and securely mounted within reach of the driver.